

## INTRODUCTION.

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THE first indication of the Crustacea which presented itself during the late Voyage of H.M.S. Samarang, occurred on the 10th of June, 1843, as we slowly sailed through the Straits of Sunda, the surface of which being nearly calm, was swarming with myriads of Stomapodons, such as the transparent *Erichthus* and *Alima*, together with several other genera, as *Phronima*, *Nerocila*, and *Sphæroma*. These were swimming apparently in dense masses near the surface, carried bodily on by the current setting through the Straits, and darting about among themselves. The *Nerocila* and *Sphæroma* rapidly revolve in the water and swim in every direction, while *Erichthus*, *Alima*, and *Phronima* propel themselves more steadily onwards by repeated flexion and extension of the abdomen.

While the trawl supplied us with specimens of these, the employment of the dredge furnished us with several forms of Podosomatous spider-like Crustaceans, which occur, however, most frequently and in the greatest number among coral barriers surrounding islands, where they are found concealed among the coral branches and in the holes of madrepores. I have also taken them from tubular sponges and even from among the spines of the larger Echinoderms. We found them in large numbers in the Mindoro Sea, in twenty fathoms water and sandy bottom, on which occasion they were found entangled in huge bunches of a species of pinnatiforous keratophyte. Mr. Adam White, in the Proceedings of the Zoological Society, has described two new species of the genus *Nymphon* obtained in this manner, under the names of *Nymphon Johnstonianum* and *Nymphon Phasma*.<sup>1</sup> These Crustaceans are very slow and languid in their progression, moving their slender articulations but feebly. In the Straits, we likewise obtained by the dredge several fine specimens of the

<sup>1</sup> Ann. and Mag. Nat. Hist., 2nd Ser. vol. i. p. 227.

beautifully marked *Galathea elegans*, a figure of which we have given; it is very active in its movements, darting backwards by sudden powerful jerks, snapping its fore-legs quickly together and producing a clicking noise; when at rest the fore-legs are extended in the same line as the body, perfectly straight; when swimming, the tail is first bent under the body and again forcibly reflexed backwards. Near the same spot a specimen of our very rare *Tlos muriger* was dredged at a depth of ten fathoms, with other species of Crustaceans, chiefly belonging to the genus *Philyra* and *Leucosia*. The *Tlos*, like *Oreophorus* and *Leucosia*, is apathetic and inert, slow in its progressive movements, and relying for security upon its stone-like form. Arrived among the islands of the China Sea, crustaceous animals were observed in all their prolific variety, for in these organisms, as in others, the existence of a high temperature seems to increase their numerical importance, and invest them with more singular modifications of form and with greater brilliancy of colour.

Two of the most remarkable Crustaceans to be met with among the group of islands next visited, namely, that of the Meïa-co-shimah, are the *Scopimera globosa* of De Haan, and the *Mycteris deflexifrons* of the same naturalist. The former burrows in the muddy banks and sandflats, just above low-water mark, perforating the surface in every direction. In some parts of Koo-kien-san (one of this group) they are so numerous as to impart a peculiar colour to the shores, when seen at a distance. They walk but slowly and are very inactive in their habits; when disturbed they make awkward scrambling habits to get out of sight, by burying themselves in the mud in the manner of certain *Macrophthalmi*. The latter genus (*Mycteris*), although somewhat resembling the genus *Ocypode* in many particulars, yet differs considerably in regard to vivacity and locomotion; like their swift-footed consimilars, they form superficial burrows in the sandy mudflats, into which they retreat in the same clumsy scrambling manner as do the *Scopimeræ* on the approach of danger. In some parts of the Meïa-co-shimahs I have ridden over many acres of sandy mud covered with these bright blue crabs, and on looking behind could perceive a dark straight line made by the passage of the horse, as he caused them to conceal themselves in the soil in his progress onwards. They delight to bask at the mouth of their apertures in the sun, just after the receding tide has left the flats partially dry, and appear then to be most on the alert in procuring food. Here likewise we met with a species of *Gelasimus* allied to *G. Chlorophthalmus* of Professor Milne Edwards, with bright orange fore-legs, the left one being bigger than its carapace or, indeed, than the entire body, which inhabits burrows, formed obliquely among



the grass in muddy places near the sea. The *Ocypode ceratophthalma* and other species are collected by the poorer classes as food; they dig them out of their deep sandy burrows with great eagerness and diligence, by means simply of their hands. I have seen the natives sometimes drive them out by insinuating a long pliant twig into the aperture, and have known them also pour water into the hole and so force its occupant to appear; by minutely examining the foot-prints near the burrow, they are able to say with certainty whether it is vacated or occupied by an *Ocypode*. On the flat sandy beaches of this group, if the stones which the tide has left dry are turned over, hundreds of *Porcellanæ* are perceived shuffling along, with their bodies closely applied to the under surface of the stones, seeking protection by quickly gliding to the opposite side. Our species, *P. pulchripes*, is active and bustling in its habits, but another new species (*P. versimana*), found among the coral-reefs of Koo-kien-san, is apathetic and indolent, and the *P. obesula*, A. and W., which was dredged from twenty-four fathoms in the Sooloo Sea, was very sluggish in its movements. The *Elamena unguiformis* of De Haan was found here also; slow in its movements, it lurks concealed in holes of the under surface of stones below high-water mark. A species of *Calappa*, allied to *C. spinosissima*, is found in the shallow bays, which covers itself with sand, and when captured feigns death, folding the fore-legs close against the front and retracting the hind-legs under the carapace. All the species of *Calappa* that I have seen alive are timid and slow-moving. A species of *Alpheus*, probably new, inhabits pools under stones on the sandy beaches, and when disturbed makes a loud clicking noise by snapping together the claws of the fore-legs; and in the padi-fields, a *Gecarcinus*, allied to *G. lateralis*, is very common, running about in all directions, feeding on the larvæ of *Libellulidæ* and other insects.

The *Paguridæ*, or Pirate-Crabs, are very numerous throughout the shores of the Indian Islands, taking refuge, some in the prostrate bodies of decayed trees that usually lie upon the strand, some among the loose stones and in the dead leaves and underwood, and some even penetrating the verge of the forest and ascending the trees that border upon the sea. These are almost entirely terrestrial; some, however, are quite littoral in their habits, while others again live at great depths. We obtained one species of *Pagurus* off the Cape of Good Hope, living in 230 fathoms water, which was remarkable for having fabricated a dwelling in the form of a univalve turbinated shell out of the dead *Ancillariæ* which abound there, and which are covered with masses of alcyonoid sponge. In the Bashee Group, numerous fine

specimens of the large *Birgus latro* were obtained. Respecting this species, which lives high up among the mountains, the natives of Batan (one of the islands of this group) tell very remarkable stories, maintaining that it utters a sharp cry when caught, that it bites most severely and defends itself with desperation, that it carries its eyes in its tail, runs with surprising celerity backwards, feigning death when alarmed, and does much mischief in the cocoa-nut plantations by cutting down the young trees with its powerful fore-legs. From my own observation I may safely affirm that it runs swiftly backwards, feigns death when disturbed, feeds on fruits, and is of immense strength. They are esteemed, especially the female in spawn, great delicacies in these islands, and from experience I can say that the partiality for them seems well bestowed. We found the same species at the Meïa-co-shimah Group of Islands, where they inhabit holes in the banks among the pine woods, and frequent the cemeteries, where they feed on the bodies of the dead, several being caught in the act by one of our officers. We obtained several live specimens, as large as a common Lobster, also from the Cocos or Keeling Islands, where they are said to be very destructive to the young cocoa-nut trees, and where their principal food consists of the pulp of the cocoa-nut, which they obtain through a round hole made by tearing away the fibres and breaking through the shell. On the flat, weedy, sandy beach of the island of Ibugos (another island of the Bashee Group) I observed a species of *Callianassa*, which digs pits in the sand in which it conceals itself until its prey is in the vicinity, when it seizes upon it and drags it below the surface.

In many parts these islands are over-run with various kinds of *Sesarma*, the species of which differ very much in their habits. Among those I detected as belonging to the fauna of this group, one was found under stones, on sandy flats just below high-water mark; another inhabited the coral reefs; a third, fresh-water rivulets and pools, hiding under stones and logs, and climbing the roots of trees with great facility. Another species, allied to *S. affinis* of De Haan, has the same habits, but running more about upon the dry land among the roots of grass, &c. One, of a marbled light sandy colour, with pale grey blotches, lives in holes in the sand; another, with a hairy carapace, dark brown and purple, inhabits holes in the sandy beach above high-water mark; while in Mindanao I found a species living in fresh-water rivulets among weeds, and in the forests of Celebes, another under damp stones and logs, at some considerable distance from any water. On the summits of the hills near the sea coast, particularly on those of Koo-kien-san, I procured numerous *Talitri* and *Gammari*, from among the roots of the long damp grass in the society of *Tropidinoti* and

other orthopterous insects, and on one occasion observed the natives employing the *Eriocheir Japonicus*, De Haan, as food, throwing them alive upon the embers of their fire, and, when burnt crisp, consuming them, shell and all.

In the course of our dredgings in the China Sea, numerous new species of *Leucosiæ* were collected, generally affecting a sandy bottom, and living among the corallines and madrepores at considerable depths. They are seldom found in muddy places, but prefer deep sandy banks, where they move in a sluggish manner, and seem destitute of acute perceptions. Sufficiently protected by their hard porcellanous shells, they want the rapid progression and threatening attitudes assumed by many other genera. We have figured one of the most beautiful of these new discoveries, which is of a dead white colour covered with numerous round crimson spots. The genus *Dorippe* is another form very common in the China Sea, living in deep water, from twenty to thirty fathoms, on a muddy bottom. The Chinese fishermen often bring them up in their nets, and among large numbers which I have observed in their boats, I have found nearly every individual with an adventitious body (I believe an alcyonoid sponge) attached to the upper surface of the carapace, and retained in its position by the hooked claws of the two small posterior dorsal pairs of legs. This body is divisible into a thin brown layer, with concentric fibres, and an external white lamina with radiating fibres and a dark central nucleus. I have frequently noticed the same peculiarity in *Dromia verrucosipes*, and in many specimens both of *Dorippe* and *Dromia* which I examined in this condition, the carapaces were perfectly soft, as if this foreign body served them as a protection during the period of their moulting. The *Caphyrea pectinicola*, White, which was dredged by us in the Sunda Straits from thirteen fathoms, bears a small pecten shell in a similar manner, hooking itself on to the ears of the shell by the claws of its hinder legs, its soft carapace being thus secured from harm by this adventitious covering. Sir E. Belcher informs me that he discovered another species in the Gulf of Papagaya inhabiting the single valve of a *Terebratula*, which he states was in a partially softened condition. Many other genera, as *Hyas*, *Maia*, *Arctopsis*, *Mithrax*, and *Pericera*, are known to have similar propensities, loading their backs with foreign bodies, such as sponges, algæ, and other phytozoöic and vegetable productions.

Near Manado, in the island of Celebes, I visited a woody tract which harboured numbers of *Gelasimi* of several species, many of them of the most beautifully varied markings and colour. Among them were varieties of our *G. bellator*, of a green colour with black



markings; another was black, with two bright ultramarine spots in the middle of the carapace; while another species was grey, marbled with white, with an enormous light yellow chela. These *Gelasimi* cover the ground by thousands, stalking about in a deliberate manner, and holding up and occasionally snapping the claws of their huge fore-legs. Notwithstanding that they appear to be over-burdened with this unwieldy member, they are by no means easy to capture, but run quickly to the mouths of their burrows, where they remain stationary, holding up their fore-claws as organs of defence, and, if further pursued, retreat backwards into their holes, their bodies protected by the same member. In the pools of fresh water and under damp stones, a dark olive-green *Sesarma* with bright yellow blotches was obtained, and on the coast numbers of the elegant and agile *Thelphusa grapsoides*, which is found on the coral flats left dry by the receding tide. The *Chasmagnathus convexus* of De Haan is another crab which appears to be rather common among the Philippine Islands. I have found it in the company of *Xenophthalmus pinnotherides*, in the firm black mud of Manila Bay, where it forms oblique cylindrical holes.

Near the Dyak village of Samahratan, not far from the mouth of the Lundu River in Borneo, there are certain mud-banks left dry at low-water, and which are perfectly cribriform with the cylindric holes of *Gelasimi*, *Ocypode*, and other genera. When their communities are no longer flooded by the water, these Crustaceans make their appearance in large numbers, but retreat on the slightest alarm into their subterranean burrows. They are of every variety of colour, some of them being milk-white, some purple, others reddish and mottled, while many are perfectly black. So numerous are these crabs, that seen at a little distance they give the surface a variegated appearance, nearly obscuring the original colour of the mud.

In many parts of Borneo, as soon as the water recedes from the shore on the ebbing of the tide, and the large firm mud-flats are left exposed, numbers of Crustaceans of different genera and species issue from their various holes and hiding-places. The males of many species, after looking cautiously around them, stalk a few paces with their huge fore-legs raised, the claws of which they snap frequently together, producing a slight clicking sound, then rushing eagerly towards the females they embrace them with their fore-legs. The salute is very brief, and is immediately followed by the swift retreat of the females into their different burrows. Other species are seen feeding on worms and shell-fish, feeding alternately first with one hand and then with the other. The common species of *Grapsus varius* is

found running over the rocks near the sea, feeding on the Blennies and *Periophthalmi* that quit the water occasionally; they feed also on the different Cirripedes. There is one species (*G. latifrons*, White) that I have found inhabiting fresh-water rivulets and ponds, which, however, has all the quick and wary habits of the other species, and when pursued hides under weeds and stones. Among numerous other forms observed along the Bornean coast, I may allude to the *Sicyonia* of Edwards, which swims in a slow and deliberate manner forwards, and occasionally propels itself backwards with a sudden jerk; it keeps at a considerable distance from the shore, and appears to love deep still water.

The *Spheromæ* are generally obtained in company with *Cymodoceæ*, *Cypridinæ*, *Amphipodeæ*, and others, among dense masses of floating sea-weeds, where they appear to lead an active predatory life amid the populous mazes of the *Sargassum*, &c. They are constantly spinning and darting about, rolling up their bodies into a ball, then straightening them, and crawling among the algæ and keratophytes, with a great deal of vivacity. Among the collection brought home in the Samarang, are several species not before known to Crustaceologists. Like the genera *Thenus* and *Ibacus*, the *Scyllarus* lives at some distance from the shore, and in tolerably deep water. It swims in the manner of *Crangon*, by rapid inflexions of the abdomen, occasionally springing through the water with the greatest velocity in a backward direction, and, when caught, wounds the hands with its tail, throwing it about with violent jerks. At Unsang in Borneo, which was the next place visited, I discovered a new species of *Alope*, (White,) an active restless Crustacean, darting and whirling forwards and backwards, and frequently producing a loud clicking noise by snapping the claws of their fore-legs, in the manner of *Callinassa* and *Squilla*. Specimens were found under nearly every stone which I turned on the beach at low water. The *Gonodactyli* appear to differ slightly from the *Squillæ* in their habits, inasmuch as they are generally found in deeper water, whereas the *Squillæ* affect the shallow, weedy, and sandy bottoms, within coral-reefs and on flat beaches, where they hide in holes of the banks of pools, across which they dart occasionally in straight lines, leaving a turbid track behind them. Both genera have, however, the same power of producing a loud clicking noise with the claws of their fore-legs, and of inflicting very severe wounds with their chelæ, using them in a scythe-like manner, like the *Mantis* which they resemble. The *Trapeziæ* are tolerably lively in their habits, with the same manner of hiding and shuffling under stones as the *Porcellanæ*, but unlike them they inhabit the coral branches and madrepores of deep sunken reefs.

Many species of *Idotea* and *Iura* would appear to inhabit the sea-weed along the shores, as well as that found floating on the high seas. At the island of Quelpart, I found a large and singular species in considerable numbers in the former situation, and in the Sea of Celebes I met with several new forms among algæ far from land. Off Tampassook in Borneo, to which island we again returned, several *Ixæ* were obtained by the dredge, one of which (our *I. megaspis*) was new to science; they inhabit very deep water, and are inactive and feeble. Near the same part of the coast several specimens of *Parthenope*, which simulated death when taken, and species of *Lambrus* and *Arcania*, which have similar habits, likewise were obtained from a rocky bottom by means of the dredge. Off Balambangan, our new genus *Ceratocarcinus* was procured from twelve fathoms water; and at Unsang, on the east coast, another new genus, our *Cosmonotus*, was dredged among the clear sandy pools within the reef-barrier, which extends along a part of the coast; and near the mouth of the Pantai River a third new genus, our *Zebrida*, rewarded our research, the habits of which Crustaceans are alluded to in the following pages. On the return of the Samarang across the Atlantic, at which we have now arrived, *Erichthi* and *Alimæ*, with their spiny carapaces and elongated abdomens, were obtained, by trawling, in large numbers, swimming in an erratic manner on the surface when the water was calm. Among the vast quantities of *Acalephæ* which became entangled in the trawls, were several containing living *Phronimæ*, which, on being extricated, swam freely about. Here also was obtained, at the same time as *Nemichthys* of Richardson,<sup>1</sup> our new genus *Rhabdosoma*, which swims by suddenly straightening its body when in a bent position, moving either backwards or forwards; it is sluggish in its movements compared with other *Hyperiadæ*. The *Phyllosomata*, diaphanous and sluggish of movement, were frequently assembled during this calm by many thousands on the surface of the Atlantic, and, together with numbers of anomalous *Zoææ*, afforded ample amusement during the protracted passage. Among the Entomostracous Crustacea, several specimens of *Cypridinæ* of large size (*C. Adamsii*, Baird<sup>2</sup>) were obtained, as they were revolving and darting about the surface. The specimens described and figured in the following pages are deposited in the British Museum. A. A.

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<sup>1</sup> *Vide* Fishes, Pl. X. Fig. 1.

<sup>2</sup> Ann. and Mag. Nat. Hist., 2nd Ser., vol. i. p. 21.



# CRUSTACEA,

BY

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## I. INACHIDÆ.

In the family *Inachidæ* we have been fortunate enough to discover a new species of *Inachus*, and a remarkable form of *Oncinopus*, both from the Eastern Seas; species of *Doclea*, *Camposcia*, and *Egeria* were collected, those genera appearing to be principally exotic, while but few species of *Inachus*, *Leptopodia*, or *Stenorynchus* were noticed among the islands of the Eastern Archipelago, they being chiefly confined, in their geographic distribution, to other zoological regions. All the members of this small, though singular, group are passive in defence, having a tendency either to conceal themselves in sponges and among the tangles of Keratophytes and Algæ, or, as is the case with *Camposcia*, to cover themselves with foreign bodies, so as to be almost undistinguishable from the marine objects that surround them. They are feeble in their articulations, and extremely inert and slow-moving when disturbed in their lurking places.

### 1. ONCINOPUS, *De Haan*.

#### 1. ONCINOPUS NEPTUNUS, *Adams & White*. Tab. II. Fig. 1.

Fronte profunde incisâ; lobis frontis angularibus; secundo et tertio paribus pedum admodum gracilibus; vix ter et dimidio longioribus thorace; quarto et quinto paribus thorace vix ter longioribus.

*Thorace* longitudine septem linearum, latitudine quinque; trigonali, postice lato, ad frontem paullatim angustiore, tomentoso, compluribus, brevibus, acutis, aculeatis processibus præsertim ad partem posteriorem circumdato; regionibus mediis et branchialibus depressione haud admodum profundâ separatis; posteriore parte sulco transverso inter thoracem et post-abdomen: corpore excavato inter quintum par pedum;

thorace subdilatato lateraliter supra insertiones secundi, tertii, et quarti pedum parium, sed inde ad frontis apicem omnino integro.

*Fronte* ad extremitatem anteriorem declinatâ, a thorace haud plane distinctâ, ultra medium emarginatâ, atque incisâ antice, efficiente duos lobos qui ad extremitates rotundati sunt.

*Chelis* æqualibus, subgracilibus, brevibus densis tenuibus setis coopertis; brachio subcylindrico ad oculos introrsum curvato, longis, fortibus, paululum curvatis setis utrimque fimbriato; carpo convexo et extrorsum inclinato; manu lateraliter compressâ, convexâ externe, concavâ interne, infra rotundatâ, supra subangulari; digito brevior, lævi, curvato, et minutim denticulato.

Secundo et tertio paribus pedum thorace vix ter dimidioque longioribus; multo crassioribus, majoribus et longioribus quarto et quinto paribus; tertio articulo cylindrico et antice paulo latiore; quarto articulo elongato, conicali, longis setis utrimque fimbriato; quinto articulo tertio longiore tertiâ parte, margine anteriore leniter curvato, posteriore dilatato, arcuato, longis, bene dispositis, ciliatis processibus retro directis utrimque fimbriato, supra leniter sulcato, infra profundis caualibus; chelis dilatatis, admodum curvatis, supra sulcatis, setis longis fortibusque utrimque fimbriatis; apice curvato et acuto.

Quarto et quinto pedum paribus thoracem fere ter longitudine superantibus; secundo et tertio paribus multo gracilioribus atque minoribus; tertio et quarto articulo fere simili longitudine; quinto articulo brevi, lato, depresso incurvato; chelis dilatatis, acutis, et chelis reliquorum pedum crassioribus.

HAB. Mare Mindorum.

Front deeply incised, lobes of the front angular; second and third pairs of legs very slender, nearly three times and a half the length of the carapace; fourth and fifth pairs nearly three times as long as the carapace.

*Carapace* about seven lines long and five wide, trigonal, broad behind, gradually becoming narrower towards the front, tomentose, and beset with numerous short, sharp, sting-shaped processes, particularly towards the hinder part; middle and branchial regions separated by a rather superficial impression, posteriorly a transverse groove between the carapace and abdomen; body hollowed out between the fifth pair of legs, carapace a little dilated laterally above the insertions of the second, third, and fourth pairs of legs, but perfectly entire from this to the apex of the front.

*Front* bent down towards the anterior extremity, not distinctly separated from the carapace, emarginate beyond the middle, and deeply notched anteriorly, forming two lobes which are rounded at the ends.

*Fore-legs* equal in size, rather slender, covered with short, close-set, fine hairs; third joint subcylindrical, curved inwards towards the eyes, fringed on each side with long, stiff, slightly-curved hairs; fourth joint convex and bent outwards; fifth joint somewhat laterally compressed, convex externally, concave internally, rounded below, rather angular above; claws rather short, smooth, curved, and finely denticulated.

Second and third pairs of legs nearly three times and a half longer than the carapace, much stouter, larger and longer than the fourth and fifth pairs; third joint cylindrical, and a little wider anteriorly; fourth joint elongated, conical, fringed on each side with long hairs; fifth joint a third longer than the third joint, the anterior margin slightly curved, the posterior dilated, arched, fringed with long, regular, ciliated processes on each side, directed back-

wards, slightly grooved above, and deeply channelled below; claws dilated, much curved, grooved above, fringed on each side with long, stout hairs, curved and sharp at the ends.

Fourth and fifth pairs of legs nearly three times as long as the carapace, much smaller and more slender than the second and third pairs; third and fourth joints about equal in length: fifth joint short, broad, flattened, incurved; claws dilated, sharp and stouter than the claws of the other feet.

HAB. Sea of Mindoro; fifteen fathoms.

This species comes very near the *Oncinopus aranea* of De Haan, Faun. Japon. (tab. xxix. f. 2), but its carapace is much smaller in comparison with the length and slenderness of the legs. The fore-legs are much slenderer and of greater length; the fourth and fifth pairs of legs are nearly three times as long as the carapace; whereas in *O. aranea* they are only twice the length of the carapace; the second and third pairs of legs are nearly three and a half times longer than the carapace, the front is more deeply incised, and the lobes are very angular.

The *Oncinopi*, like the *Inachi*, live in rather deep water, more particularly in coral bottoms, and where Keratophytes and other zoophytic forms abound. Among the branches of these, like aquatic spiders in their webs, these apathetic crustaceans entangle their elongated limbs; they are, like the *Pholci* among Arachnidans, very inert and feeble, and excessively slow and languid in their movements.

## 2. ONCINOPUS ARANEA, *De Haan*.

Pedibus quartis et quintis anterioribus brevioribus, tarsis curvatis; thoracis lateribus integris.

HAB. Maria Orientalia (M. Mindorum); Adams.

Fourth and fifth pairs of legs shorter than the anterior pairs, tarsi curved, sides of the thorax entire.

HAB. Eastern Seas (Sea of Mindoro).

## 2. INACHUS, *Fabricius*.

### 1. INACHUS LORINA, *Adams & White*. Tab. II. f. 2.

Regionibus ventricularibus et cardiacis convexis, bitubercularibus; oculorum pedunculis uni-spinosis.

*Thorace* trigono, supra convexo, regionibus lateralibus paullo latioribus intermediâ regione; thorace ad latera post oculos attenuato: spinâ tuberculari paullo prominente ad antelateralem thoracis partem; duobus validis magnis tuberculis in lineâ intermediâ in superiore thoracis superficie, quæ tuberculis minutis granularibus et setis longis, tenuibus, sparsisque distinguitur.

*Fronte* vix ad finem brachii antennarum exteriorum pertinente, profunde sulcato inter canthos in lineâ secundâ, et valido jugo longitudinali in utroque latere; apice truncato, horizontali, in medio paululum emarginato, duobus terminalibus grandiusculis lobis adornatis compluribus, rectis et crassis setis. Canthis integris ad partem superiorem arcuatis et paululum protendentibus; oculorum pedunculis lateraliter directis extra canthos spinâ longiore et præacutâ in parte anteriore positâ; antennis exterioribus thorace fere dimidio brevioribus.

*Chelis* thorace dimidio longioribus, marginibus exteriore et interiore fimbriatis; longis, validis, curvatis



setis, ex ordine dispositis; brachio trigono; carpo supra convexo et extrorsum curvato; manu extra convexâ, intra concavâ, introrsum curvatâ, supra et infra obtusâ; unguibus introrsum inclinatâ, deorsum curvatis, longioribus, compressis, margine inferiore ad basin sinuato; marginibus utrisque minutim denticulatis; uno majore dente ad utriusque basin.

Primo pari pedum posteriorum admodum gracili et elongato, quintuplo et dimidio thorace longiore; secundo pari vix tantâ longitudine; femoribus cylindricis paululum tomentosus, serie setarum curvarum in parte posteriore; tibiis tertiâ parte longitudinis femorum, parte anteriore setis incurvatis obsitâ; tarsis femora longitudine æquantibus compluribus breviusculis setis, inter quas setæ majores sparsæ inveniuntur; unguibus setis perlongis, tenuibus, gracilibus coopertis. Abdomine in feminâ sex-articulato.

HAB. Maria Orientalia (littus Mindanaum).

Ventricular and cardiac region convex, bitubercular, peduncles of the eyes with one spine.

*Carapace* trigonal, convex above, lateral regions rather wider than that of the middle region, carapace narrowed at the sides behind the eyes, a tubercular, rather prominent spine on the antero-lateral part of the carapace, two strong and large tubercles, in the middle line, on the upper surface of the carapace, which is, moreover, covered with minute granular tubercles, and long, thin, scattered hairs.

*Front* not quite extending as far as the end of the second joint of the external antennæ, deeply grooved between the orbits, in the middle line, and with a strong longitudinal ridge on each side: apex truncated, horizontal, slightly emarginated in the middle, with the two lateral, terminal, slightly-developed lobes, tufted with numerous straight and stiff setæ; orbits entire, arched at the upper part, and slightly projecting; peduncles of the eyes protruding laterally considerably beyond the orbits, with a rather long and sharpened spine situated on the anterior part; external antennæ scarcely half as long as the carapace.

*Fore-legs* one and a half times the length of the thorax, with the outer and inner edges fringed with long, stiff, curved hairs very regularly disposed; third joint trigonal; fourth joint convex above, and bent outwards; fifth joint convex externally, concave internally, curved inwards, obtuse above and below, claws bent inwards, curved downwards, rather long, compressed, inferior edge sinuated near the base, both edges finely denticulated, each with one larger tooth near the base.

First pair of hinder legs very slender, much elongated, five times and a half the length of the carapace, second pair of posterior legs hardly as long, femora cylindrical, slightly tomentose, with a row of curved hairs on the posterior part; tibiæ a third of the length of the femora, the anterior part beset with incurved hairs, tarsi as long as the femora, with numerous rather short hairs, and having longer hairs scattered among them; claws covered with very long, fine, slender hairs. Abdomen, in the female, six-jointed.

HAB. Eastern Seas (Shores of Mindanao).

This species comes very near *Inachus (Achæus) Japonicus* of De Haan, Faun. Japon. p. 99. t. xxix. f. 3, but the middle region has two strongly-marked tubercles, and the peduncles of the eyes have but one spine instead of four. The legs are also much longer in proportion than in *A. Japonicus*.

3. ACHÆUS, *Leach*.1. ACHÆUS JAPONICUS, *De Haan*.

Regione ventriculi et cordis convexâ; oculorum pedunculis 4-spinulosis.

HAB. Japoniam.

Ventricular and cardiac regions, convex; peduncles of the eyes with four small spines.

HAB. Japan.

*Inachus (Achæus) Japonicus*, De Haan, F. J. p. 99. t. 29. f. 3 (femina).

4. LATREILLIA, *Rouv*.1. LATREILLIA VALIDA, *De Haan*.

Major, thoracis regione ventriculi unispinosâ; pedibus postremis anteriorum pedum femoribus longioribus; abdominis feminae articulo quarto medio non spinoso; spinis frontalibus in utroque sexu integris, tertiâ parte thoracis brevioribus.

Japonice *Midsu hiki gani*, i. e., Cancer in formam Polygoni filiformis.

HAB. Japoniam.

Rather large, thorax with one spine in the ventricular region; the hind feet longer than the femora of the anterior feet; the fourth joint of the abdomen, in the female, not spiny in the middle; the frontal spines, in both sexes, entire, shorter than a third part of the thorax.

Called in Japanese *Midsu hiki gani*, or Crab of the shape of a filiform Polygonum.

HAB. Japan.

*Latreillia valida*, De Haan, F. J. p. 107. t. 30. f. 1 (femina).

2. LATREILLIA PHALANGIUM, *De Haan*.

Minor, thorace in regione ventriculi unispinoso, pedibus postremis femoribus præcedentium brevioribus; abdomine femineo medio bispinoso; spinis frontalibus tertiâ parte longitudinis thoracis brevioribus, in feminis bispinulosis.

HAB. Japoniam.

Rather small, thorax with one spine in the ventricular region, the hind feet shorter than the femora of the preceeding; abdomen, in the female, with two spines in the middle line; frontal spines one third shorter in length than the thorax, in the female, bispinulose.

HAB. Japan.

*Latreillia Phalangium*, De Haan, F. J. p. 108. t. 30.

5. MACROCHEIRA, *De Haan*.1. MACROCHEIRA KÆMPFERI, *De Haan*.

Cornibus frontis extrorsum inflexis; canthis parte superiore 4-spinosis.

Japonice *Sima-Gani*, i. e., Cancer insularis.

HAB. Littus orientale Nipponense (*Mus. Brit.*).

Horns of the front bent outwards, the upper part of the orbits four-spined.

In Japanese *Sima-Gani*, or insular Crab.

HAB. The eastern shores of Nippon ; Japan.

*Inachus (Macrocheira) Kämpferi*, De Haan, F. J. p. 100. t. 25. (mas.) t. 27 et 28 (femina) ; Kämpfer, Besch. von Japan. 1. p. 158. tom. 14. A. (*Brachium maris adulti*).

## 6. CAMPOSCIA, Latreille.

### 1. CAMPOSCIA RETUSA, Latreille.

*Thorace* fere dimidio longiore quam latiore, fronte latissimâ, truncatâ, desinente in duobus parvis tuberculis quæ ad basilarem articulum antennarum exteriorum fere pertinent ; dente validissimo ad partem lateralem thoracis, spatio satis magno post oculos ; pedibus prioribus cylindricis, digito parum valido desinentibus, paululum introrsum curvatis, ad margines denticulatis, cavis punctis in sulco, tertio pedum pari ferme dimidio longiore quam corpus.

HAB. Insulas Philippinas.

*Carapace* about as long again as wide, front very wide, truncated, and terminating in two little tubercles which nearly extend as far as the basilar joint of the external antennæ ; a very strong tooth on the lateral part of the carapace at some distance behind the eyes.

*Fore-legs* cylindrical, terminated by a weak pincer, slightly curved inwards, denticulated at the edges with hollow puncta in the groove, the third pair of legs nearly twice as long as the body.

HAB. Philippine Islands (Guimaras) ; Cuming.

*Camposcia retusa*, Latr. R. Anim. t. 4. f. 61 ; Guerin. Icon. t. 9. f. 1 ; Edw. Crust. t. 1. p. 283. t. 15. f. 16.

The *Camposcia retusa*, in its young state, has the carapace smooth and shining, and the legs, which appear rather slender, are but slightly tomentose ; as it advances in life, the carapace and legs become covered with a thick, woolly, yellowish-brown tomentum, and, in advanced age, the entire animal is concealed by a covering of Sponges, Corallines, Algæ, Actiniæ, and Alcyonia, beneath which it is impossible to recognise the species. The dissimilar aspect presented by this species, under these various conditions, is splendidly illustrated by a suite of specimens in the collection of the British Museum.

The species is widely distributed, and the materials with which their bodies are covered appear to depend upon the localities in which they are found. Specimens from the Mauritius are covered with fine corallines and algæ, while those from the Philippines are concealed altogether by stones and sponges.

## 7. EGERIA, Latreille.

### 1. EGERIA INDICA, Latreille.

Intiorem marginem tertii articuli maxillarum exteriorum recto, et ad angulum prominente.

HAB. Oceanum Indicum.



Inner edge of the third joint of the external maxillæ straight and prominent at its angle.

HAB. Indian Ocean.

*Egeria indica*, Leach, Zool. Misc. vol. 2. t. 73. Edw. Crust. vol. 1. p. 292.

2. *EGERIA LONGIPES*, (E. Herbstii,) *Edwards*.

Fronte permagnâ, longitudine ter ampliore quam latitudine; cætera *Egeriæ Arachnoidi* similibus.

HAB. Insulas Philippinas (Zebu); Cuming.

Front very large, three times as wide as long; in other respects like *Egeria Arachnoides*.

HAB. Philippine Islands.

8. *DOCLEA*, *Leach*.

1. *DOCLEA CALCITRAPA*, *White*. (t. 1. f. 2.)

*Thorace* septemdecim magnis spinis in latere lateribusque, et sedecim tuberculis minoribus in superficie superiore; septem magnis spinis in medio thorace, sex erectis quarum sexta e basi spinæ admodum elongatæ horizontalis terminalis exoritur; postremâ spinarum in latere reliquis tribus multo longiore. Tota superficies setis obsita fuisse videtur. Quatuor paria pedum posteriorum perlonga atque gracilia sunt.

*Thoracis* latitudo unum pollicem, quatuor lineas; longitudo unum pollicem, decem lineas.

HAB. Insulas Philippinas (Zebu); Cuming.

*Carapace* with seventeen large spines on the back and sides, and sixteen smaller tubercles on the upper surface; seven of the large spines down the middle of carapace, six of them erect, the sixth springing from the base of the much-elongated, horizontal, terminal spine; the last of the spines of the side much longer than the other three. The whole surface seems to have been covered with hairs. The four hind pairs of legs are very long and slender.

Breadth of carapace, one inch, four lines; length, one inch, ten lines.

HAB. Philippine Islands (Zebu); Cuming.

A species distinguishable at first sight from the four species hitherto described, of all of which there are specimens in the British Museum.

2. *DOCLEA OVIS*, *Edwards*.

Nulla spina mediana in posteriore thoracis margine.

HAB. Chinam.

No median spine on the posterior border of the carapace.

HAB. China.

*Doclea ovis*, Edw. Crust. vol. i. p. 294. *Cancer ovis*, Herbst. vol. i. p. 210. t. 20. f. 82. *Inachus ovis*, Fabr. Ent. Syst. Suppl. 355. *Maia ovis*, Bosc. t. 1. p. 256. Latr. Hist. Nat. des Crust. t. 4. p. 100.

3. *DOCLEA HYBRIDA*, *Edwards*.

Posteriore thoracis margine in lineâ medianâ parvâ spinâ armato; marginibus latero-anterioribus thoracis quatuor brevibus spinis armatis posteriore non reliquis majore; secundo pedum pari fere dimidio longiore thorace.

HAB. Indiam.

Posterior margin of the carapace armed on the median line with a small spine : latero-anterior borders of the carapace armed with four short spines, the posterior of which is not larger than the others : second pair of legs not quite twice the length of the carapace.

HAB. India.

*Doclea hybrida*, Edw. Crust. 1. 294 ; *Inachus hybridus*, Fabr. Suppl. p. 355 ; *Maia hybrida*, Bose. t. 1. p. 256 ; Latr. Hist. Nat. des Crust. t. 6, p. 99.

#### 4. DOCLEA MURICATA, *Edwards*.

Posteriore thoracis margine magnâ medianâ spinâ armato ; latero-anterioribus marginibus quatuor spinis armatis, posteriore reliquis multo majore.

HAB. Indiam.

Posterior margin of the carapace armed with a large median spine ; latero-anterior margins armed with four spines, the posterior of which is much larger than the others.

HAB. India.

*Doclea muricata*, Edw. Crust. 1. 295 ; *Cancer muricatus*, Herbst. 1. 211. t. 14. f. 83. ; Fabr. Ent. Syst. Suppl. 355.

## II. MAIADÆ.

In the family of the *Maidæ*, many new and interesting forms, hitherto unknown, are here, for the first time, indicated, including two new genera and seventeen new species. In their habits, these Crustacea resemble the *Inachidæ*, being very inert and apathetic, not using their chelæ in self-defence, and covering themselves very frequently with foreign bodies. They appear to be diffused pretty equally over the globe, *Chorinus* being found both in the east and west : *Mithrax* and *Libinia* seem to be confined to the New World ; *Micippe* and *Pericera* are tropical genera, as are also *Huenia* and *Menæthius* ; while *Maia*, *Hyas*, *Arctopsis*, and *Pisa*, are found in the countries of Europe.

### 1. PISA, *Leach*.

#### 1. PISA SINOPE, *Adams & White*.

*Thorace* serie tuberculorum magnitudine diversâ in lineâ intermediâ, serie septem tuberculorum in quâque regione laterali ; proprius lineam intermediam quinque aliis tuberculis seriatim dispositis ; lateribus quinque spinis, postremâ reliquis rigidiore et eminentiore ; tota superficies thoracis, tuberculis admodum minutis et tenuibus, curvatis, sparsis setis obsita est. *Fronte* duobus spinis rigidis, divaricantibus, curvatis setis circumdatis ; superiore canthorum margine plano spinâ unâ antice et spinâ rigidâ angulari projectâ profundâ incisione in fronte. *Chelis* lævibus, postfrontalem thoracis partem longitudine exæquantibus ; *pedes posterioribus* fuscis tuberculis admodum minutis obsitis, et tenuibus sparsis setis circumdatis.

HAB. Insulas Philippinas.

*Carapace* with a row of tubercles varying in size in the middle line, a row of seven tubercles in each lateral region, internal to these, nearer the middle line, five other tubercles in a linear series ; sides with five spines, the hind one stronger and more prominent than the

rest; entire surface of carapace covered with very minute tubercles and fine, curved, scattered setæ. *Front* with two strong, divaricating spines, beset with curved setæ; upper margin of orbits plane, with a single spine anteriorly, and a strong, angular spine directed forwards, with a deep notch in front. *Fore-legs* smooth, as long as the postfrontal portion of the carapace; hindlegs covered with very minute, brown tubercles, and beset with thin scattered hairs.

HAB. Philippine Islands.

2. PISA PLANASIA, *Adams & White*. Tab. II. Fig. 4 & 5.

*Thorace* majore longitudine quam latitudine, ovato-trigonalis, superficie lævi quasi denudatâ, sparsis cristulis setarum fuscæ atque villosarum, ad partem posteriorem minutim granulosa; parvâ spiâ tuberculari paululum eminente in medio tuberculo ventriculari; parvâ eminente spinâ in mediâ quâque laterali vel branchiali regione ad partem posteriorem positâ; tribus, parvis tuberculis supra eam seriatim dispositis in partem anteriorem thoracis pertinentibus; marginibus lateralibus postice integris, tribus obtusis paululum eminentibus spinis ad partem anteriorem, quam ad partem thorax angustus subito fit.

*Fronte* duabus, robustis, eminentibus, breviusculis, parallelis spinis, ad apices paululum incurvatis, et crassis, validis, curvatis setis obsitis; canthis antice integris, postice profunde incisis, eminente, obtuso, angulari, tuberculo post incisionem.

*Chelis* lævibus, parvis, gracilibus, paribus, raris, longis, crassis setis obsitis; carpo subcylindrico introrsum curvato et antice majore; manibus brevibus rotundatis, atque curvatis, duobus parvis tuberculis in superficie exteriore et superiore; digitis subgracilibus, subcylindricis lateraliter compressis, et longis, crassis, raris setis obsitis; unguibus in medio paululum hiantibus, introrsum curvatis et minutim denticulatis.

*Secundis et tertiis paribus pedum*, toto atque dimidio thorace longioribus, denso, fusco tomento adopertis, carpis subcylindricis antice dilatatis; manibus elongate conicalibus; quartis et quintis paribus pedum secundis et tertiis brevioribus; unguibus acutis, validis, atque curvatis.

*Abdomine maris* sex articulis, serie tuberculorum eminentium in lineâ intermediâ; articulo secundo latissimo tuberculo papilliformi ad utrumque latus tuberculi intermedi; reliquis segmentis paulatim angustioribus, postremo triangulari et acuminato. *Abdomine feminae* ovato admodum convexo atque dilatato, quinque articulis, prostremo articulo late trigonali.

HAB. Mare Sinense.

*Carapace* longer than wide, ovately trigonal, surface smooth, as if denuded, with scattered tufts of brown, villose hairs, and finely granulate towards the hinder part; a small, slightly prominent tubercular spine in the centre of the ventricular prominence; a small prominent spine in the middle of each lateral or branchial region, situated towards the posterior part, and three small tubercles arranged above this, in a linear series, extending towards the fore part of the carapace; lateral margins entire, posteriorly, with three obtuse, slightly prominent spines towards the anterior part, at which situation the carapace becomes suddenly contracted.

*Front* with two strong, prominent, rather short, parallel spines, somewhat incurved towards their apices, and covered with thick, strong, curved hairs. Orbit, anteriorly, entire, deeply incised posteriorly, with a prominent, obtuse, angular tubercle behind the notch.

*Fore-legs* smooth, small, slender, equal in size, covered with scattered, long, stout hairs; the third joint subcylindrical, curved inwards and enlarged anteriorly; fourth joint short, rounded, and curved with two small tubercles on the outer and upper surface; fifth joint



rather slender, subcylindrical, laterally compressed, and covered with long, stout, scattered hairs, claws slightly gaping in the middle, curved inwards, and finely denticulated.

*Second and third pairs of legs* one and a half times longer than the carapace, covered with a close, dense, brown tomentum; third joints subcylindrical, dilated anteriorly; fourth joint elongately conical. Fourth and fifth pairs of legs shorter than the second and third pairs. Claws sharp, strong, and curved.

*Abdomen of male* six-jointed, with a row of prominent tubercles in the middle line, the second joint the widest, with a nipple-shaped tubercle on each side of the central tubercle, the remaining segments becoming gradually narrower, the last being triangular and pointed. *Abdomen of female* ovate, very convex and dilated, five-jointed, the last joint broadly trigonal.

HAB. Chinese Sea.

This species comes nearest *Navia diacantha* of De Haan (Tab. 34. Fig. 1), but in that species the frontal spines are very long, straight, and diverging; the fore-legs very large, thick, and strong; and the carapace is armed on each side with a stout, strong, and prominent spine; *N. diacantha* wants, moreover, the three tubercles on the lateral regions, the form of the carapace is more trigonal, and the legs are much shorter in comparison with the carapace than in *Pisa Sinope*.

## 2. ARCTOPSIS, *Lamarck*.

### 1. ARCTOPSIS STYX.

Haud multum a *Pisa tetradonte* differt, thorace tamen longiore, et marginibus latero-anterioribus crassis spinis in medio armatis; superiore canthi margine fissura perangusta.

HAB. Mauritium.

Does not differ much from *Pisa tetradon*, but the carapace is more elongated, and the latero-anterior margins are armed in the middle with thick spines, while the superior edge of the orbit has a very narrow fissure.

HAB. Mauritius.

*Pisa Styx*, Latr. Enc. Méth. 10. 141. Edw. Crust. vol. i. p. 308; *Cancer Styx*, Herbst. vol. i. p. 243. t. 17. f. 96;

## 3. NAXIA, *Edwards*.

### 1. NAXIA DIACANTHA, *De Haan*.

*Thorace* parte posticâ lateribus utrimque unispinoso, spinâ productâ, fronte bicornutâ, cornibus acutis simplicibus, regione ventriculi mediâ unituberculatâ.

Lateral margins of the carapace armed at the posterior part with a single spine on each side, spine produced, front with two horns; horns acute, simple, a single tubercle on the middle of the ventricular region.

*Pisa (Navia) diacantha*, De Haan, Faun. Japon. t. 24. f. 1.

4. HYASTENUS, *White*.

*Thorax* suboblongus, ad latera rotundatus, ante et pone oculos directus; parvo, transverso sulco in superiore cantho. *Frons* duobus cornibus thoracem longitudine æquantibus, primo parallelis, posterius divergentibus et paululum deorsum directis; antennis exterioribus omnibus articulis cylindricis; insertione articuli basalis cornu frontali occultatâ.

*Chelæ* graciles, secundo pari pedum majori longitudine, gracillimo; articulo terminali acie spinosâ.

*Carapace* rather oblong, rounded on the sides behind, before and behind the edges straight; a slight transverse groove in the upper orbit; front with two horns as long as the carapace, at first parallel, and then diverging, and directed slightly downwards; outer antennæ with all the joints cylindrical; the insertion of the basal joint concealed by the frontal horn.

*Fore-legs* slender; second pair of legs the longest, and very slender; terminal joint with the edge spined.

A genus allied to *Hyas* and *Chorinus*, the only species of which was long ago figured in the large work of Seba.

1. HYASTENUS SEBÆ, *White*.

Superficie superiore subaspersâ et pube velatâ.

HAB. Philippine Islands.

Upper surface somewhat roughish, and covered with a delicate down.

HAB. Philippine Islands.

*Hyastenus Sebæ*, White, List of sp. of Crust. in Brit. Museum; *Cancer araneus, cornutus alter*, Seba, Thes. 3. 4. 5. t. 18. f. 12.

5. CHORINUS, *Leach*.1. CHORINUS ACANTHONOTUS, *Adams & White*. Tab. I. Fig. 1.

*Thorace* quatuor longis spinis armato duabus anterioribus ad basin sese adpropinquantibus atque paululum projectis, posterioribus bifidis; furcis anterioris spinarum posteriorum lateraliter divergentibus, posterioris longitudinaliter; tribus spinis in utrâque brachiali regione; anteriore projectâ, horizontaliter depressâ; mediâ gracili retrorsum, sursum et extrorsum projectâ duobus acutis tuberculis ad basin deorsum spectantibus; posteriore duâbus divaricantibus gracilibus spinis retrorsum et sursum directis.

*Rostro* cornibus longis depressis, ad basin conjunctis, paulatim divergentibus et deorsum curvatis. Canthorum marginibus ad partem superiorem longâ bifidâ spinâ armatis, ad anteriorem brevi bifidâ spinâ, et ad posteriorem, brevi spinâ prorsum curvatâ finitis; canthorum margine inferiore fere obsoleto, angulo externo in acuto dentali processu desinente.

*Chelis* et supra et infra cristâ acutâ denticulatâ armatis; pedibus cylindricis, duobus spinis longis præacutis instructis, unâ in utroque latere superioris partis extremitatis articulorum dispositâ, sursum et extrorsum tertiorum divergente. Tarsis longis curvatis, infra lævibus. Corpore longis tenuibus setis cooperto.

HAB. Maria Orientalia; Borneo (Unsang).

*Carapace* armed with four long spines, the two front ones rather close together at their

bases, and directed a little forwards; the two hinder bifid; the forks of the anterior hinder spines diverging laterally, and those of the posterior divaricating longitudinally, three spines on each branchial region, the *anterior* pointed forwards, flattened horizontally, the *middle* slender, curved backwards, upwards, and outwards, with two divaricating, slender spines, directed backwards, outwards, and upwards. Horns of the rostrum long, flattened, close together at the base, gradually diverging and curved downwards. Orbital margin armed at its superior part with a long bifid spine, on the *anterior* part having a short bifid spine, and on the *posterior* part bounded by a short spine, curved forwards. Inferior margin of the orbit nearly wanting, and its external angle ending in a short, sharp, tooth-like process. The first pair of legs armed both above and below with a trenchant, denticulated crest, the other legs cylindrical and furnished with two long, sharp-pointed spines, situated one on each side of the upper part of the extremity of the *third joints*, and diverging upwards and outwards; tarsi long, curved, and smooth below. Body covered with long, thin hairs.

HAB. Eastern Seas; Borneo (Unsang).

This species differs from *Chorinus aculeatus* (Edwards, *Hist. Nat. des Crust.*, vol. i. p. 316, and De Haan's species, *Fauna Japonica*, Plate 23. fig. 2.), in the length and position of the spines, which are not tipped with a knob, but sharp-pointed, and in the thin joints of the posterior pairs of legs being armed with two spines. The peculiarity of the long bifid spine above the old orbit must also be regarded as a singular characteristic, the front legs are more slender, the horns of the rostrum are longer and less divaricating than in *C. aculeatus*.

The species described above enters into *Chorinus* of Professor Edwards and Dr. De Haan, but it seems to be very different from *Chorinus* of Leach, founded on a West Indian and South American type.

The *Chorinus*, like the species of *Mithrax*, inhabit deep water, and always seem to prefer those localities where the bottom is covered with weeds; they are very inactive in their movements, and become rigid in all their limbs when first captured, but make no defence with their forelegs. One specimen was obtained by the dredge, entangled in a mass of corallines, and the *C. longispina* was procured from a coral bottom near the great Loo-Choo.

## 2. CHORINUS LONGISPINA, De Haan.

Canthorum margine superiore spinis elongatis armato, thorace in lineâ mediâ spinis 6, tertiis et quartis basi transversim conjunctis; spinis duabus in regionibus branchialibus; omnibus cylindricis valde elongatis, apice incrassatis, femoribus apice unispinosus, tarsis apice integris.

HAB. Maria Orientalia.

*Chorinus longispina*, De Haan, Faun. Japon. p. 94. t. 23. f. 2.

The superior margin of the orbits armed with elongated spines, six spines in the middle line of the thorax, the third and fourth transversely joined at the base, two spines on the



branchial regions, cylindrical and greatly elongated, with the apex thickened, femora with one spine at the end, tarsi entire at the apex.

HAB. Eastern Seas.

### 3. CHORINUS ACULEATUS, Edwards.

Thorace quinque admodum longis spinis in medianâ lineâ armato, et duabus ad utramque regionem branchialem.

HAB. Maria Orientalia.

Carapace armed with five very long spines on the median line, and with two on each branchial region.

*Chorinus aculeata*, Milne-Edwards, Crust. vol. i. p. 316.

HAB. Indian Seas.

### 4. CHORINUS VERRUCOSIPES, Adams & White. TAB. II. Fig. 3.

Thorace sex, acutis elevatis tuberculis, quinto permagno et conspicuo, parva spina ad basin utroque latere; duobus tuberculis eminentibus et angularibus in utraque regione laterali, uno minore in medio alteroque in parte inferiore atque exteriore; thoracis superficie minutis, depressis, punctis et curvatis setis sparsim aggregatis obsita; lateribus pone oculos quinque rotundatis tuberculis.

*Fronte* desinente in duabus, crassis, divergentibus spinis setis curvatis obsitis superiore canthorum parte tribus spinosis processibus armata; anteriore obtuso, sursum et prorsum directo; medio reliquis minore, a posteriore profunda incisione separato, posteriore longo, dente in margine posteriore.

*Chelis* levibus, longitudine thoracem fere exæquantibus; secundo pari pedum longissimo; pedibus tenuibus, cylindricis, tuberculis verrucosiformibus et setis crassis atque sparsis obsitis.

HAB. Maria Orientalia.

*Carapace* with six, sharp, elevated tubercles, the fifth being very large and conspicuous, with a small spine at each side at the base; two prominent angular tubercles on each lateral region, with a smaller one between them, and another on the lower and outer part; surface of carapace covered with minute, depressed dots, and scattered tufts of curved setæ; sides, behind the eyes, with five rounded tubercles.

*Front* terminating in two stout diverging spines beset with curved setæ; upper part of orbit armed with three spiny processes, the anterior obtuse, directed upwards and forwards, the middle smaller than the others, and separated from the posterior by a deep incision, the posterior process long, with a tooth on the hind edge.

*Fore-legs* smooth, nearly equal in length to the carapace; the second pair of legs the longest; legs thin, cylindrical, covered with wart-like tubercles, and coarse scattered setæ.

HAB. Eastern Seas.

## 6. MITHRAX, Leach.

### 1. MITHRAX DICHOTOMUS Latreille.

Thorace granuloso, sine spinis in superficie superiore; cornibus rostri admodum divergentibus paullo longioribus quam latioribus, desinentibus in duobus dentibus qui fere æquales sunt.

HAB. Insulas Philippinas.

7. PARAMITHRAX, *Edwards*.1. PARAMITHRAX EDWARDSII, *De Haan*.

Canthis infra emarginatis; oculis usque ad angulos canthorum externos productis; thorace lateribus 5-spinosis; manibus levissimis utrinque convexis margine superiore et interiore obtusis.

HAB. Japoniam.

*Carapace* granulose, and without spines on the upper surface; horns of the rostrum very diverging, not much longer than wide, and terminated by two teeth, which are nearly equal.

HAB. Philippine Islands; Cuming.

*Mithrax dichotomus*, Latr. Desm. Cons. 150; Edw. in Guer. Mag. de Zool. 1832. t. 1. Crust. 1. 319. t. 15. f. 1-4. *Maja dichotoma*, De Haan, Faun. Japou. t. 22. f. 4.

Orbits emarginate below, eyes prolonged as far as the external angles of the orbits, thorax with five spines on the sides; hands very smooth, convex on both sides, obtuse on the upper and lower edges.

HAB. Japan.

*Maja (Paramithrax) Edwardsii*, De Haan, F. J. p. 92. Tab. 21. fig. 2. (*Peronii*. Edw.)

8. TELMESSUS, *White*.

*Thorace* depresso, pentagonali, latero-anterioribus lateribus reliquis longioribus; latero-posterioribus lateribus duobus dentibus in medio; latero-anterioribus lateribus duobus latis dentatis dentibus inter exteriorem canthorum angulum et maguam, latam dentatam divisionem, cujus finis unum ex eminentibus angulis thoracis efficit. Rostrum latissimum, ex tribus latis dentibus consistens, quorum lateralis anteriorem canthorum angulum efficit.

*Pedes* longissimi, compressi.

*Carapace* depressed, somewhat pentagonal, the latero-posterior sides being the longest, the latero-posterior sides have two teeth in the middle; the latero-anterior sides have two broad, dentated teeth, between the external angle of the orbit and the strongly developed, wide, dentated division, the end of which forms one of the prominent angles of the carapace; the beak is very wide, and is formed of three broad teeth, the lateral forming the internal angle of the orbit.

Legs very long, compressed.

This genus, described in the Proceedings of the Entomological Society, was, by mistake, referred to as coming near *Plagusia*. It, however, enters into the family *Maidiæ*; near it and probably placed in the same genus is the *Cancer cheirogonus*, described and figured by Dr. Tilesius, in the Mémoires de l'Académie Impériale des Sciences de St. Petersbourg (tome V. 1812. p. 347. Tab. VII. f. 1.), which species he tells us is taken abundantly in Kamschatka, at Arvatchsa, in a bay which derives its name from the abundance of the Crabs: the sailors of the Niva eagerly sought after the species, finding it to be very delicious as food.

1. TELMESSUS SERRATUS, *White*. Tab. III.

Superficie obsita parvis verrucis nonnunquam seriatim dispositis, setis e fronte extantibus.

Surface covered with small warts, arranged in some places in lines, with hairs proceeding from the front of them.

The specimen is a male.

#### 9. MAIA, *Lamarck*.

##### 1. MAIA SPINIGERA, *De Haan*.

Spinis lateribus et frontalibus quartam partem longitudinis postfrontalis emetientibus, acuminatis; spinis quinque dimidio brevioribus, pone medium transversim dispositis; verrucis in spatio intermedio minutis, æqualibus.

HAB. Japoniam.

Lateral and frontal spines pointed, measuring a fourth part of the length of the post-frontal part of the carapace; five spines, half the size, arranged transversely behind the middle, with minute, equal-sized warts in the intermediate space.

HAB. Japan.

*Maja (Maja) spinigera*, De Haan, Faun. Japon. p. 93. Tab. 24. fig. 4.

#### 10. DIONE, *De Haan*.

##### 1. DIONE AFFINIS, *De Haan*.

Thorace granulato, et acute spinuloso; cornubus rostri ter longioribus quam latis, apice acutis; lateribus spina dimidio brevioribus armatis; digitis superioribus parte media unispinosus.

HAB. Japoniam.

*Carapace* granulated and acutely spinulose, horns of the front three times as long as wide, and with the points sharp, sides armed with a spine, half as large, one spine in the middle of the upper finger of the fore-legs.

HAB. Japan.

*Maja (Dione) affinis*, De Haan, F. J. p. 94. t. 22. f. 4.

#### 11. MICIPPA, *Leach*.

##### 1. MICIPPA THALIA, *Herbst*.

Pedibus posterioribus thoracem postfrontalem vix superantibus; fronte ultra medium in cornua duo extrorsum versa divisâ.

HAB. Japoniam.

The hinder legs scarcely extending beyond the post-frontal thorax; front beyond the middle, divided into two horns turned outwards.

HAB. Japan.

*Pisa (Micippa) Thalia*, De Haan, F. J. p. 98. t. 23. f. 3. (mas); *Cancer Thalia*, Herbst. t. 58. f. 3.

##### 2. MICIPPA PHILYRA, *Leach*.

*Thorace* tuberculis granulosus obsito: haud tamen in superficie superiore spinoso.



*Carapace* covered with granular tubercles, but not spiny on the upper surface.

HAB. Philippine Islands (Guimaras).

3. MICIPPA CRISTATA, *Leach*.

Thorace compluribus longis aentis spinis in superfieie superiore.

HAB. Insulas Philippinas (Siquijor, Zebu.) Javam.

*Carapace* bristling on the upper surface, with a great number of long, sharp spines.

HAB. Philippine Islands (Siquijor, Zebu). Java.

*Micippa cristata*, Leach, Zool. Mise. vol. 3. t. 128. Edw. Crust. vol. 1. p. 330. Cuv. R. Anim. (Croch) t. 31. f. 2.

*Cancer cristatus*, Linn. Syst. Nat. vol. 2. p. 1047. t. 44.

*Cancer bilobus*, Herbst. vol. 1. p. 245. t. 18. f. 98. Rumph. t. 8. f. 1.

4. MICIPPA BICARINATA, *Adams & White*.

Thorace flaveolo, rubro intersperso. Fronte duabus longitudinalibus carinis, tuberculis, ex quibus complures setae oriuntur. Pedibus depressis.

HAB. Insulas Philippinas (Zebu, Luzon).

*Carapace* pale-yellow, sprinkled with red; front with two longitudinal keels, bearing tubercles, from which spring many hairs; legs depressed.

HAB. Philippine Islands (Zebu, Luzon); Adams and Cuming.

12. SCHIZOPHRYS, *Adams & White*.

Thorax ovalis, depressus, postice paululum attenuatus. Rostrum profunde ineisum; superiore canthorum parte alte ineisâ, valido dente in mediâ incisione; inferiore canthorum parte appendice elongato intus, duobus dentibus ad extremitatem. Chelæ reliquis pedibus breviores; digiti sine dentibus. Cauda maris septem articulis; latera fere parallela.

*Carapace* oval, depressed, somewhat attenuated behind; beak deeply cloven, upper part of orbit deeply cloven with a strong tooth in the middle of the cleft; under part of orbit with an elongated appendage on the inside, with two teeth at the end. Fore-legs shortest; fingers without teeth. Tail of male with seven joints, the sides nearly parallel.

1. SCHIZOPHRYS SERRATUS, *Adams & White*.

Duo articula basalia chelarum minutis acuminatis tuberculis; latera thoracis sex validioribus dentibus, exteriore canthorum dente adnumerato; duobus validis dentibus frontalibus, denticulo in utroque dente, ad exteriorem basis partem. (Mas.)

HAB. Mauritium.

The two basal joints of fore-legs with numerous pointed tubercles; sides of carapace with six rather strong teeth, including outer tooth of orbit; two strong teeth of front, with a tooth on each at the outside. (Male.)

HAB. Mauritius.

2. SCHIZOPHRYS SPINIGER, *Adams & White*.

Articulis basalibus chelarum lævibus; in quoque thoracis latere octo dentibus; secundo et tertio a canthis ad basin conjunctis; postice, in medio, duobus parvis dentibus simul dispositis. *Thorax* supra compluribus minutis tuberculis, inter quæ sunt undeviginti paullo majora, plerumque transverse disposita. Thorax flavus est, hic illic rubro tinctus.

HAB. Insulas Philippinas. Siquijor, Ins. Bohol; Cuming.

Basal joints of fore-legs smooth, sides of carapace with eight teeth on each, the second and third from the orbit united at the base; behind in the middle, close to each other, are two small teeth. Carapace above with numerous minute tubercles, amongst which are nineteen of larger size, arranged mostly transversely; carapace yellow, tinged here and there with red.

HAB. Philippine Islands, Siquijor, Island of Bohol; Cuming. Coll. Brit. Museum.

13. PERICERA, *Latreille*.1. PERICERA TIARATA, *Adams & White*.

*Frontis* cornibus styliformibus, gracilibus, sine spinis, parallelis, ad apices paululum divergentibus, fimbriatis, ut antennæ exteriores, ad utrumque latus rigidis curvatis setis; spinâ robustissimâ ante, alterâ post canthos.

Lateribus et superiore superficie thoracis obsitis tuberculis conicis, obtusis, diversâ magnitudine, cum minoribus, depressioribus, verrucosiformibus tuberculis mixtis; superficie tamen non granulata; unâ eminentiore spinâ ad latera in parte posteriore, inter quas tiara e magnis rotundatis tuberculis conficta extenditur. In parte posteriore valido intermedio tuberculo, et duobus lateralibus, infra quæ series est quinque minorum tuberculorum. Superficie thoracis inter tuberculos sparsis lanosis setis.

Pedibus in superiore superficie lævibus, lateribus tuberculatis et fimbriatis longis, densis, furvis, lanosis setis.

Horns of the front styliform, slender, not armed with spines, parallel, slightly diverging at their points, and fringed, as well as the external antennæ, on each side, with stiff curved hairs; a very strong spine before, and another after, the orbits.

Sides and upper surface of carapace covered with conical, obtuse tubercles, varying in size, mixed with smaller, flatter, wart-like tubercles, but the surface is not granulated; one rather prominent spine on each side, on the hinder part, between which extends a tiara of large rounded tubercles; at the posterior part a strong central, and two lateral tubercles, with a row of five smaller tubercles beneath them. Surface of carapace, between the tubercles, with scattered woolly hairs.

Legs smooth on the upper surface, with the sides tuberculated and fringed with long, thick, reddish-brown, woolly hair.

HAB. Philippine Islands; Cuming.

2. PERICERA SETIGERA, *Adams & White*.

Cornibus frontis styliformibus parallelis, et per totam longitudinem contiguus; rigidis, curvatis, setis ciliatis, neque tamen spinigeris vel ad fines divergentibus.

Thoracis superiore superficie compluribus rotundatis tuberculis obsitâ; cristâ setarum in cujusque medio; totâ superficie et tuberculorum et spatiorum intermediorum minutim granulata; tribus tuberculis eadem magnitudine in parte posteriore, et duobus infra ea minoribus.

Pedibus minutim granulosis præcipue in superficiebus superiore et exteriore, secundis ceteris longioribus. Unguibus minutim denticulatis, longis tenuibus setis inter denticulationes quæ paullo curvatæ et spiniformes sunt.

HAB. Insulas Philippinas.

Horns of the front styliform, parallel, and contiguous throughout their length, ciliated with stiff curved hairs, but not spinigerous nor diverging at their ends.

Upper surface of carapace covered with numerous rounded tubercles, each with a tuft of hairs proceeding from its centre; the entire surface, both of the tubercles and the spaces between them, very finely granulated; three equal-sized tubercles on the hinder part with two smaller ones beneath them.

Legs minutely granulose, more particularly on their upper and outer surface; the second pair longer than the others. Claws finely denticulated, with long, slender hairs between the denticulations, which latter are slightly curved and spiniform.

HAB. Philippine Islands.

### 3. PERICERA CORNIGERA, *Edwards*.

Cornibus rostri styliformibus, parallelis, et per totam longitudinem contiguus.

HAB. Insulas Philippinas.

Horns of the rostrum styliform, parallel, and contiguous throughout their length.

HAB. Philippine Islands; Cuming.

*Pericera cornigera*, Edw. Crust. 1. 335; *Pisa cornigera*, Latr. Enc. Méth. 10. 141.

## 14. MENÆTHIUS, *Edwards*.

### 1. MENÆTHIUS SUBSERRATUS, *Adams & White*. Tab. IV. Fig. 1, 2.

*Thorace* trapæziformi angulo anteriore in tres spinas ex eâdem planitie surgentes divisio, angulo posteriore truncato; superficie superiore compluribus prominentibus tuberculis obsitâ, lateribus validâ, breviusculâ spinâ, quatuor obtusis, depressis dentibus ante spinam, sinu inter duos anteriores et duos posteriores dentes.

*Fronte* spinâ angustâ, longâ, inclinatâ, paullo bilobatâ ad finem, et setis curvatis utroque latere fimbriatâ.

*Chelis* brachio cylindrico, paucis tuberculis in superficie superiore et exteriore ad basin; carpo gibboso; manu compressâ, lævi, supra et infra obtusâ; digitis hiantibus, inferiore curvato, dentibus ad unum finem dense dispositis, nullis tamen ad basin; superiore compluribus dentibus ad finem, dente magno et crasso ad basin, et alto inter eos sinu; brachio pedum posteriorum duobus tuberculis in superficie superiore ad basin; secundo pedum pari ceteris longiore.

HAB. Insulas Philippinas.

*Carapace* diamond-shaped, with the front-angle divided into three spines, arising from the same plane, and with the hind angle truncated; upper surface covered with numerous, raised, prominent tubercles; side-margins with a rather short, strong spine, with four blunt, flattened teeth before it, and a sinus between the two front ones and the two hinder ones.

*Front* with a narrow spine, long, bent down, slightly bilobate at the end, and fringed on each side with curved setæ.

*Fore-legs* with the third joint cylindrical, with a few tubercles on the upper and outer surface near the base; fourth joint gibbous, fifth joint compressed, smooth, obtuse above and



below, fingers gaping, the lower one curved, with closely-set teeth at one end, but without teeth at the base; upper one with several teeth at the end, a large, thick tooth near the base, and a deep sinus between them; third joint of the hind-legs with two tubercles on the upper surface near the base; second pair of legs longer than the others.

HAB. Philippine Islands.

In this species the sides are armed with four broad, rounded teeth placed before the lateral spine, while in *M. porcellus* there is but one tooth anterior to the spine, and in *M. tuberculatus* there are two large, prominent teeth; the carapace is more elongated in the males than in *M. porcellus* or *M. tuberculatus*, the frontal spine is much longer, and the tubercles on the back are smaller and less rounded. The young female of this species appears to be the *M. diadema*, Leach, MSS., where the carapace is subtetragonal, nearly as wide as long, strongly embossed with numerous tubercles of different sizes, and with the frontal spine short compared with the male and adult females.

## 2. MENÆTHIUS PORCELLUS, *Adams & White*.

*Thorace* trigonali, longiore quam latiore, antice producto, postice rotundato; parte superiore compluribus, magnis, rotundatis tuberculis obsitâ; lateris margine unâ, validâ spinâ, magno, obtuso, conspicuo dente ante spinam; lateribus post canthos angustatis.

*Fronte* tribus dentibus ex eâdem planitie surgentibus; medio admodum elongato, acuminato, ad finem inclinato, longitudine fere tertiâ parte thoracis, setis curvatis ad utrumque latus ciliato, velut in *Hueniâ*; spinis lateralibus admodum validis et acutis, ad utrumque latus prorsum directis; basi pedum duobus vel tribus tuberculis in latere exteriore; secundo pari ceteris longiore.

HAB. Mauritium.

*Carapace* trigonal, longer than wide, produced anteriorly, rounded behind, upper part very irregular, and covered with numerous large, rounded tubercles; side-margin with one strong spine, with a large, blunt, conspicuous tooth before it; sides narrowed behind the orbits.

*Front* with three teeth arising from the same plane, the middle one very much elongated, pointed, bent down at the end, about a third the length of the carapace, ciliated on both sides with curved setæ, as in *Huenia*; the lateral spines very strong and sharp, directed forwards on either side, base of legs with two or three tubercles on the outer side, second pair longer than the others.

HAB. Mauritius.

The existence of a single well-formed, strong tooth, situated anterior to the lateral spine, serves to characterize this species.

## 3. MENÆTHIUS TUBERCULATUS, *Adams & White*.

*Thorace* subtrigonali; lateribus duobus, depressis, angularibus dentibus ante spinam lateralem, quæ obtusa est. Regione cardiacâ et ventriculari duobus antice tuberculis, uno ad utrumque latus lineæ mediæ; cristâ verticali tuberculo minuto, altero post admodum prominente et rotundato, et tertio post alterum paullo minore; posteriore thoracis margine duobus, erectis, angularibus dentibus.

*Fronte* tribus spinis ex eâdem planitie surgentibus; mediâ longâ, gracili, inclinatâ atque in medio sulcatâ; spinis lateralibus altioribus validis, triangularibus, duobus inter eas parvis tuberculis.

HAB. Mauritium.

*Carapace* subtrigonal, sides with two large, flattened, angular teeth before the lateral spine, which is obtuse; cardiac and ventricular region with two tubercles anteriorly, one on each side of the middle line; a vertical crest with a minute tubercle; and behind that, a very prominent, rounded tubercle, with another, rather smaller, behind it; posterior edge of carapace with two erect angular teeth.

*Front* with three spines arising from the same plane, the middle one long, slender, bent down, and grooved in the middle; lateral spines rather elevated, strong, triangular, with two small tubercles between them.

HAB. Mauritius.

*M. tuberculatus*, Leach, MSS.

#### 4. MENÆTHIUS INCISUS, *De Haan*.

Fronte bicornutâ, cornibus divergentibus acutis; regionibus ventriculi et cordis medio acute unispinosus; lateribus ante medium in laciniam truncatam dilatatis.

HAB. Japoniam.

Front with two horns; horns sharp, diverging, a single sharp spine in the ventricular and cardiac regions, the sides anteriorly dilated into a truncated border.

HAB. Japan.

*Pisa (Menæthius) incisus*, De Haan, F. J. p. 98. t. 24. f. 3. (femina).

#### 5. MENÆTHIUS QUADRIDENS, *De Haan*.

Fronte bicornutâ, cornibus divergentibus acutis; regionibus ventriculi et cordis convexis; thoracis lateribus bispinosus, spinis anterioribus ab spinulis canthorum posticis sinu separatis.

HAB. Japoniam.

Front with two horns: horns sharp, diverging, ventricular and cardiac regions convex; sides of the carapace with two spines, the anterior spines separated from the posterior spines of the orbits by a sinus.

HAB. Japan.

*Pisa (Menæthius) quadridens*, De Haan, F. J. p. 97. t. 24. f. 2. (mas.)

### 15. HUENIA, *De Haan*.

#### 1. HUENIA FRONTALIS, *Adams & White*. Tab. IV. Fig. 3.

*Thorace* æque lato atque longo, subquadrilaterali, lævi, sine tuberculis in mediâ lineâ, producto et postice rotundato; lateribus acutis, uno lato lobo, postice paululum emarginato, horizontaliter undulato, antice arcuato, in medio depresso et postice elevato.

*Fronte* latissimâ, lateraliter dilatâtâ, obtusâ et antice rotundâtâ, admodum depressâ, supra planâ et infra in mediâ lineâ alte sulcatâ.

*Chelis* minimis, thoracem fere longitudine adæquantibus, pedibus posterioribus non crassioribus; brachio trigonali, apice in parte superiore validâ conicâ spinâ et postice duabus minoribus, verticalibus, conicis spinis in carinâ; carpo supra carinato, spinâ tuberculari in superficie superiore et minore; manu supra carinatâ; carinâ unâ in medio spinâ et infra in valido angulari dente desinente; tertio et quarto paribus

pedum ceteris brevioribus; unguibus paululum curvatis, subelongatis, infra minutim serratis et inter serrationes setis circumdati.

*Carapace* as broad as long, subquadrilateral, smooth, without tubercles in the middle line, and produced and rounded posteriorly; sides acute, with a single broad lobe, slightly emarginated posteriorly, horizontally undulated, arched anteriorly, depressed in the middle and raised behind.

*Front* very wide, laterally dilated, obtuse and rounded anteriorly, considerably depressed, plane above, and inferiorly deeply channelled in the middle line.

*Fore-legs* very small, about the length of the carapace, not thicker than the posterior pairs, third joint trigonal, the end, on the upper part, with a strong conical spine, and posteriorly, two smaller, vertical, conical spines on the keel, fourth joint keeled above, with a tubercular spine on the upper and inner surface; fifth joint keeled above; claws slightly gaping, the upper one with a single spine a little behind the middle.

Second pair of legs longer than the others, third joint trigonal, carinated above, with a single, strong, compressed spine at the end, and two smaller ones posteriorly, fourth joint winged above, carinated externally, and rounded below; fifth joint very much compressed, carinated above, keel with a single spine in the middle, and ending below in a strong, angular tooth; third and fourth pairs of legs shorter than the others; claws slightly curved, rather elongated, finely serrated below, and beset with hairs among the serrations.

In the peculiar and characteristic form of the front and carapace, this species differs in a very remarkable manner from those varieties of *Huenia proteus*, which are named var. *elongata*, *heraldica*, and *tenuipes*. The locality of the specimen described above, which is in the collection of Crustacea in the British Museum, is unknown, but as all the others are natives of the Eastern Seas, the present species is most likely from the same part of the globe. The description is from a female.

2. HUENIA PROTEUS, *De Haan*. Tab. IV. Fig. 4-7.

Frontis margine inferiore acuto, pedibus posterioribus margine anteriore valde carinatis.

*a. Mas.* Thorace elongato, lateribus uni- vel bi-laciniato; fronte valde productâ; thorace longiore. (Var. *elongata*.)

*b. Fem.* Thorace dilatato, lateribus bi-laciniato; fronte dimidium thoracem vix superante. (Var. *heraldica*.)

*c.* Anteriore margine pedum posteriorum paululum carinato; thorace subelongato; chelis gracilibus; inferiore margine frontis non tam producto quam in reliquis varietatibus. (Var. *tenuipes*.)

HAB. Maria Orientalia.

Lower edge of front sharp, posterior legs with the anterior margin strongly carinated.

*a. Male.* Thorax elongated, sides with one or two lobes; front greatly produced, carapace rather long. (Var. *elongata*.)

*b. Female.* Carapace dilated, sides with dilated lobes, front scarcely extending beyond half the length of the carapace. (Var. *heraldica*.)



c. Anterior margin of hinder legs but slightly keeled; carapace rather elongated; forelegs slender; inferior margin of front not so much produced as in the other varieties. (Var. *tenuipes*.)

HAB. Eastern Seas; Mindanao, China, Japan.

*Maja* (*Huenia*) *Proteus*, De Haan, Faun. Japon. p. 95. t. 23. f. 4-5 mas. (*elongata*) f. 6. a, b, femina (*heraldica*.)

M. De Haan appears to have had considerable difficulty in defining the varieties of this curious species, nor are we able to do more than add another variety to the two already indicated. Whether at any time these varieties will be elevated to the rank of species, on the discovery of a more extensive suite of specimens of different sexes and ages, remains for future observers; and, in the meantime, we furnish a more extended description of the variety we have named *tenuipes*.

3. HUENIA PROTEUS, *De Haan*. Var. *tenuipes*. Tab. IV. Fig. 5.

*Thorace* longiore quam latiore, oblongo, trigonali, superficie superiore depressâ et lævi, duobus tuberculis in mediâ lineâ paululum inter se distantibus; lateribus duobus compressis lamellaribus lobis; anteriore antice rotundato, posterioribus ad margines liberos truncatis.

*Fronte* valde elongatâ, thoracem longitudine fere adæquante, ad latera ciliatâ rigidis incurvatis setis; lamellâ inferiore non tam deorsum productâ quam in *H. proteo*; canthis productis in validam spinam ad utrumque latus frontis antice directam.

*Chelis* gracilibus, thoracem longitudine fere adæquantibus, secundo pari paullo crassioribus; brachio subtrigonalî, uno tantum parvo tuberculo in superficie superiore, duobus in inferiore; spinâ ad finem partis superioris parvâ; in *H. proteo* autem duo sunt tuberculi supra et tria infra; et spina supra ad apicem pervalida et maxima est; carpo supra obtuso; manu in superficie superiore carinatâ; unguibus denticulatis; secundo pari pedum thoracem longitudine superante; brachio cylindrico nullâ ad finem spinâ; carpo paululum compresso; manu dilatâtâ infra in spinam validam ad apicem positam, cristâ setarum adornatam; unguibus longis, marginibus inferioribus minutim denticulatis, setis intermediis; brachio quinti paris unâ spinâ in mediâ anteriore parte.

*Abdomine* quinque articulis; quarto valde convexo in medio longitudinaliter impresso; primo et secundo rotundato in medio tuberculo. Femina adulta.

HAB. Maria Orientalia.

*Carapace* longer than wide, oblong, trigonal, upper surface flat and smooth, with two tubercles in the median line a little distance apart; sides with two compressed lamellar lobes, the front lobes rounded anteriorly, the hinder lobes truncated at their free edges.

*Front* very much elongated, nearly as long as the carapace; ciliated at the sides with stiff, incurved hairs, inferior lamella not so much produced downwards as in *H. proteus*; orbits produced into a strong spine on each side of the front, directed forwards.

*Fore-legs* slender, nearly as long as the carapace, rather thicker than the second pair, third joint less trigonal, with but one slight tubercle on the upper surface, and but two tubercles on the under surface, the spine at the end of the upper part very small, whereas in *H. proteus* there are two tubercles above and three below, and the spine at the apex above is

very strong and large; the fourth joint obtuse, superiorly; the fifth joint carinated on the upper surface. Claws denticulated. Second pair of legs longer than the carapace, the third joint cylindrical, without a spine at the end; the fourth joint slightly compressed; the fifth joint dilated below into a strong spine situated near the apex, surmounted by a tuft of hairs; third and fourth pairs of legs with the third joint slightly keeled, with two spines in the middle, the fourth joint carinated: the fifth with a slight tooth tufted with hair; claws long, with the lower edges finely denticulated, and having intermediate setæ; the third joint of the fifth pair with one spine in the middle of the fore-part.

*Abdomen* five-jointed, the fourth joint very convex, impressed longitudinally in the middle; the first and second joints with a rounded tubercle in the middle. Adult female.

HAB. Eastern Seas, Island of Mindoro.

## 17. HALIMUS, *Latr.*

### 1. HALIMUS AURITUS, *Edwards.*

Nullâ spinâ in margine posteriore thoracis, neque in regione ventriculari.

HAB. Oceanum Indicum.

No spine on the posterior border of the carapace, nor on the ventricular region.

HAB. Indian Ocean.

*Halimus auritus*, Edw. Crust. 1. 341; Cuv. R. Anim. (Croch.) t. 28. f. 3; *Pisa aurita*, Latr. Enc. Méth. 10. 140.

## 18. ZEBRIDA, *Adams & White.*

*Thorax* depressus, æque longus atque latus.

*Frons* horizontalis, paululum declinata, conficta ex duabus spinis depressis, conicalibus, antice directis ad apices paululum divergentibus; canthis circularibus; pedunculo oculorum permagno et crasso, latiore ab latere ad latus quam de supra deorsum; corneâ oculorum ultra anteriorem frontis marginem protendente, fere complente canthorum hiatus, quorum margines superiores salientes sunt; marginibus thoracis latero-anterioribus uno, valido, depresso processu armatis, conicalibus, acutis, ad basin latis, aciebus exterioribus paululum elevatis, cacuminibus prorsum curvatis; primo articulo antennarum exteriorum permagno, longo, cylindrico, antennæ rostro tectis; epistomate ei *Acanthonyxis* simillimo.

*Chelæ* breviores iis *Acanthonyxis*, spinis depressis, conicalibus, subobtusis armatæ; brachio triangulari, spinâ conicali exteriori et interiori; exteriori perlongâ, sursum et prorsum directâ; carpo tribus spinis armato; unâ superiore, posteriore prorsum directâ; duabus anterioribus lateralibus extrorsum directis, ad extremitates rotundatis; manu spinâ acutâ, depressâ cristatâ.

*Pedes posteriores* breves, crassi, admodum compressi; tertio articulo duabus magnis, depressis, conicis spinis in fronte, prorsum directis; quarto articulo uno depresso, spinoso processu in parte anteriore; quinto articulo ampliâ et postice instructo spinâ acutâ, depressâ, curvatâ, retrorsum directâ.

*Carapace* flattened, about as broad as long. Front horizontal, slightly bent down, formed of two flattened spines, conical, directed forwards, and slightly diverging at their tips. The orbits circular; the peduncle of the eyes very large and thick, broader from side to side

than from above downwards; the cornea of the eyes projecting beyond the outer margin of the front, nearly filling up the orbital cavities, the upper margins of which are salient. The latero-anterior borders of the carapace armed with a single, strong, flattened process; conical, trenchant, broad at the base, the outer edge slightly elevated, with the point curving forwards. The first joint of the external antennæ very large, long, and cylindrical, antennæ covered by the rostrum. Epistome very nearly similar to that of *Acanthonyx*. The chelæ, shorter than in that genus, are armed with flattened, conical, slightly obtuse spines. The second joint triangular, with an external and internal conical spine, the external very long, and directed upwards and forwards; the third joint armed with three spines; one superior-posterior, and directed forwards; two anterior-lateral, directed outwards and rounded at their extremities; the fourth joint crested with a sharp, flattened spine. The legs short, thick, very much compressed; the third joint with two large, flattened conical spines on the front, directed forwards; the fourth joint with but one flat, spinous process on its anterior part; the fifth joint enlarged and furnished posteriorly with a sharp, flat, curved spine, directed backwards.

This beautiful genus is very apathetic when alive; in that respect resembling *Lambrus*. In the system it is not far removed from *Acanthonyx* and *Huenia*. The description is from a female.

1. ZEBRIDA ADAMSII, *White*. Tab. VII. Fig. 1.

Colore subearneolo, fasciis rufo-fuscis; lineâ intermediâ antice bifurcatâ, deinde in basin interiore cornuum rostri obsoletâ, postice ad ultimum abdominis articulum pertinente, lineâ utrinque tenui duplici paululum undulatâ; duabus latis lineis pertinentibus ab apice spinarum rostri, in ultimo abdominis segmento concurrentibus, in medio thorace angustatis; lineâ extra tenui, duplici; extra hanc lineam fasciâ latâ, paululum curvatâ, ad postero-exteriorem thoracis angulum subito desinente; latiore fasciâ rufo-fuscâ ad basin spinarum antero-lateralium. Duabus latis, rubro-fuscis fasciis in omnibus pedum articulis, subdiagonaliter trans articulum directis; unâ latâ fasciâ eodem colore in quarto et quinto articulis. Superficie inferiore colore paullo intensiore. Exteriore parte abdominis segmentorum puncto circulari subnigro. Totâ animalis superficie lævi, sine setis, durâ, politâ et porcellanâ; oculis nigris.

HAB. Borneo.

In colour this species is of a light, delicate pink, with dark liver-coloured markings. There is a central line bifurcated anteriorly, where it is lost on the inner bases of the horns of the rostrum, reaching posteriorly to the last joint of the abdomen, and having external to it a fine, double, somewhat waved line; extending from the apex of the rostral spines, and meeting at the last abdominal segment, are two broad lines, narrowed in the middle of the carapace; external to these is a fine double line, and on the outside of this is a broad, somewhat curved stripe, ending abruptly at the postero-external angle of the carapace; and at the base of the antero-lateral spines is another rather broad linear mark of the same dark liver-colour. The third joint of all the legs has two broad, dark, red-brown bands, directed somewhat diagonally across the joint; the fourth and fifth joints have one broad mark of the same colour. The under surface is of a somewhat darker colour. On the outer part of the



abdominal segments is a round, dark spot. The entire surface of the animal is smooth, hairless, hard, polished, and porcellanous. Eyes black.

HAB. Borneo.

*Zebrida Adamsii*, White. Pro. Zool. Soc., 1847.

A very distinct variety, from about twelve fathoms, in the Sooloo Seas, had the carapace of a light green, with deep, red-brown stripes, and the legs and chelæ of a pearly semi-opaque white, very distinctly banded with deep red-brown.

The specimen from which the foregoing description is taken, was dredged from a sandy bottom, at about six fathoms water, near the mouth of the Pantai river, on the coast of Borneo. The description, it ought to have been remarked, was from a living specimen; but even the dried individual in the Museum collection is very distinctly marked.

### III. PARTHENOPIDÆ.

In the family of *Parthenopidæ*, the results of the Expedition furnish us with forms highly interesting to the Crustaceologist, including two new genera and ten new species. The genus *Cryptopodia* has been strengthened and confirmed by the discovery of a new and well-marked species, and several peculiar forms of *Parthenope* and *Lambrus* are here for the first time indicated. In their habits, the members of this group are feeble and inactive, feigning death when captured, and living generally in deep water, seeming to prefer a stony or gravelly bottom; some specimens of *Parthenope* were obtained by the dredge on the coast of Borneo, in thirty fathoms water, from a clear sandy floor; and the sandy mud of the China Sea, in many parts, abounds in *Lambri*.

#### 1. LAMBRUS, *Leach*.

##### 1. LAMBRUS HARPAX, *Adams & White*. Tab. VI. Fig. 3.

*Thorace* subtrigonal, lævi, in fronte rotundato, in medio carinato, carinatâ tribus rotundatis tuberculis armatâ, antice furcatâ, intervallum depressum triangulare exhibente, marginibus lateralibus valde crenatis, crenationibus depressis et rotundatis; angulis latero-posterioribus in depresso, triangulâ, subobtusâ, spinosâ, processu desinentibus; posteriore thoracis parte validâ spinâ retrorsum et extrorsum directâ, paululum tuberculiferâ, et validâ carinâ in posteriore parte regionis branchialis continuatâ; alterâ minore spinâ, propius mediam lineam positâ, valde carinatâ, spatio depresso inter se spinamque priorem; tribus parvis tuberculis in lineâ intermediâ, unâ centrali, et unâ ad utrumque latas.

*Fronte* paululum productâ, antice rotundatâ, margine paululum denticulatâ.

*Chelis* vix duplici longitudine thoracis; brachio et carpo, marginibus tuberculis rotundatis armatis; manu lævi, superiore angulari margine tuberculiferâ.

HAB. Oram Brunensem, (Mare Sinense.)

*Carapace* subtrigonal, smooth, rounded in front, carinated in the middle, the keel armed

with three rounded tubercles, and forked anteriorly, leaving a depressed, triangular interval; lateral edges rather conspicuously crenated, the crenations flattened and rounded; latero-posterior angles ending in a flattened, triangular, rather obtuse, spiny process; hind part of carapace with a strong spine, directed backwards and outwards, slightly tuberculiferous, and continued in a strong ridge upon the posterior portion of the branchial region; another smaller spine, situated nearer the middle line, likewise strongly carinated, leaving a depressed space between it and the former spine; three small tubercles in the median line, one central, and one on each side.

*Front* but little produced, rounded anteriorly, with the margin slightly denticulated.

*Fore-legs* about twice the length of the carapace, third and fourth joints with the edges armed with rounded tubercles; fifth joint smooth, with the upper angular edge tuberculiferous.

HAB. China Sea; coast of Borneo.

In the living state, this singular species is of an olive-green colour, with the fore-legs of a light pinkish-brown, and the under surface of a slate colour.

2. LAMBRUS LAMELLIFRONS, *Adams & White*. (Tab. V. Fig. 1.)

*Thorace* longiore quam latiore, tribus majusculis tuberculis in parte posteriore superficiei superioris; unâ in medio et unâ ad utrumque latus; lateribus thoracis in medio crenatis; latitudine thoracis  $4\frac{1}{2}$  lin., longitudine  $5\frac{3}{4}$  lin.

*Chelis* longissimis.

HAB. Insulas Philippinas.

*Carapace* longer than wide, with three rather large protuberances on the hinder part of the upper surface, one in the middle, and one on each side; sides of carapace, about the middle, crenated. Breadth of carapace four lines and a half; length five lines and three quarters.

*Fore-legs* very long.

HAB. Philippine Islands.

3. LAMBRUS TURRIGER, *Adams & White*. (Tab. V. Fig. 2.)

*Thorace* longiore quam latiore pentagono paululum producto, in fronte acuminato. Superficie superiore quatuor spinis elevatis, crassulis et ad extremitates obtusis; primâ inter anteriorem et posteriorem partem thoracis, sursum et paululum retrorsum directâ; alterâ post multo longiore; tertiâ ad utrumque latus alterius in posteriore thoracis margine; in medio duabus spinis retrorsum et paululum sursum directis; primâ et alterâ spinis anterioribus sublongis; tertiâ in medio thorace longâ, verticali, et subacuminatâ; spinis in elevato tuberculo regionis branchialis positâ, longis, crassis, erectis et paululum extrorsum retrorsumque directis; totâ superficiei thoracis obtusis subconicis tuberculis obsitâ. Latitudine thoracis vix 4 linearum; longitudine vix  $4\frac{1}{2}$  linearum.

*Fronte* parvâ, valde depressâ, breviusculâ, subobtusâ; in medio profunde concavâ, parvo dente ad utrumque latus.

*Chelis* longissimis pro magnitudine corporis, tuberculis verrucosis, lævibus, ad latera rotundatis, in cristis angularibus spinosioribus.

*Pedibus posterioribus* gracillimis, lævibus, supra et infra rotundatis, unguibus longis, tenuibus, paululum depressis et acutissimis.

HAB. Insulas Philippinas.

*Carapace* longer than wide, five-sided, rather produced and acuminate in front. Upper surface with four elevated spines, rather thickened and blunt at the ends, the first about midway between the fore and hind part of carapace, directed upwards and slightly backwards; behind it, another spine much longer, and one on each side of this, on the hind margin of carapace; in the middle, two spines directed backwards and slightly upwards; the first and second spines from before backwards, moderate in length; the third placed in the centre of the carapace, long, vertical, and rather sharp-pointed; the spines situated in the raised prominent tuberosity of the branchial region, long, stout, erect, and directed a little outwards and backwards; entire surface of the carapace covered with blunt, subconical tubercles. Breadth of carapace about four lines; length about four lines and a half.

*Front* small, depressed very considerably, rather short, somewhat obtuse, deeply concave in the middle, with a slight tooth on each side.

*Fore-legs* very long in comparison with the size of the body, verrucose or covered with warty tubercles, which latter are smooth, rounded on the sides, and more spinous on the angular crests.

*Hind-legs* very slender and smooth, rounded above and below, with the claws long, fine, slightly flattened, and very sharp.

HAB. Philippine Islands.

This species comes very near *Lambrus lamellifrons* (Adams & White), but the legs are smooth, and not spiny like those of the latter, which, moreover, has tubercles on the carapace, instead of long, erect spines.

#### 4. LAMBRUS CARINATUS, *Milne-Edwards*. (Tab. V. Fig. 3.)

Latero-posterioribus marginibus thoracis ad utrumque latus duobus parvis dentibus armatis et validissimo triangulari dente quo margo latero-anterior desinit. Superiore superficie chelarum lævi et marginatâ dentibus nullum inter se intervallum habentibus.

*Thorace* admodum inæquali, ad regiones branchiales carinato, et tribus dentibus cristæ formâ in lineâ intermediâ armato.

*Fronte* magnâ, triangulari, non denticulatâ; latero-anterioribus marginibus minutim denticulatis; brachio quatuor posteriorum pedum spinoso.

Longitudine 8 linearum.

HAB. Oram Brunensem, (Mare Sinense.)

Latero-posterior edges of the carapace armed on each side with two small teeth, and with a very strong triangular tooth, similar to that which terminates the latero-anterior edge. Upper surface of the fore-legs smooth, and bordered by close-set teeth. Carapace very unequal, carinated on the branchial regions, and armed with three teeth in the form of a crest in the median line; front large, triangular, and not denticulated, latero-anterior margins finely denticulated. Third joint of the four hind pairs of legs spiny. Length eight lines.

HAB. Coast of Borneo; China Sea.

*Lambrus carinatus*, Edw. Crust. 1. 358.



5. LAMBRUS PISOIDES, *Adams & White*. (Tab. V. Fig. 4.)

*Thorace* æque longo ac lato, triangulari, marginibus lateralibus spinis depressis, rotundatis, tuberculiformibus armatis; mediâ et branchiali regionibus valde eminentibus et convexis; regione branchiali productâ ad utrumque latus in longam, validam, acuminatam spinam retrorsum et extrorsum directam, et paululum prorsum inclinatam; totâ superficie thoracis obsitâ depressis, lævibus circularibus, verrucosiformibus tuberculis, aliis alios magnitudine longe superantibus; serie elevatorum tuberculorum in posteriore parte longitudinalis lateralis sulci, medium a branchiali regione dividētis, carinam efficientis elevatam desinentem in spinam subobtusam, brevem, retrorsum, extrorsum, et paululum deorsum directam.

*Fronte* acutâ, productiore, utrinque dentatâ, angustiore, profunde sulcatâ in medio, in spinam valde depressam triangularem desinente.

*Chelis* longissimis pro magnitudine thoracis, pari longitudine et crassitudine; brachio lævibus, depressis tuberculis supra obsito; marginibus antice et postice armatis compluribus longis et brevibus spinis alternatim dispositis; superficie inferiore angulo obtuso, externe lævi, interne granulatâ; carpo tuberculis verrucosis supra obsito, et externe armato tribus, validis, obtusis, recurvatis spinis; manu triangulari, in superficie superiore lævibus, rotundis tuberculis obsitâ, interne et in superficie inferiore minutim granulatâ; margine externo valde carinato, et quinque eminentibus subcurvatis spinis armato, serie parvorum, obtusorum, tuberculiformium processuum alternatim dispositâ; in superficie interiore serie parvarum, obtusarum proxime appropinquantium spinarum.

*Pedibus* posterioribus parvis, tenuibus, infirmis, lævibus marginibus superioribus obtusis; unguibus longis, acutis, depressis, villis lanosis fimbriatis; corpore et chelis subfuscis, majusculis subrubris maculis distinctis.

HAB. Insulas Philippinas.

*Carapace* about as long as wide, triangular, lateral borders armed with flattened, rounded, tubercle-shaped spines; middle and branchial regions very prominent and convex, branchial region produced, on each side, into a long, strong, and pointed spine, directed backwards and outwards, and inclined slightly upwards; entire surface of carapace covered with flattened, smooth, circular, wart-like tubercles, varying in size, some being considerably larger than others; a row of elevated tubercles on the posterior portion of the longitudinal lateral groove which divides the middle from the branchial region, forming an elevated ridge which terminates in a somewhat obtuse, short spine, directed backwards, outwards, and a little downwards.

*Front* acute, rather produced, toothed on each side, somewhat narrowed, deeply channelled in the middle, and ending in a considerably-depressed triangular spine.

*Fore-legs* very long in proportion to the size of the carapace, and equal in length and thickness; third joint covered above with smooth, flattened tubercles, the margins before and behind armed with numerous, long and short spines arranged alternately, lower surface bluntly angled, smooth externally, granulated internally; fourth joint covered above with warty tubercles, and armed externally with three strong, obtuse, recurved spines; fifth joint triangular, covered with smooth, round tubercles on the upper surface, finely granulated internally, and on the under surface, with the external margin strongly keeled and armed with five prominent, slightly-curved spines, finely denticulated on their edges, and alternating with a row of small, blunt tubercle-shaped processes; on the inner surface a row of small, blunt, closely-approximated spines.

*Hind-legs* small, thin, feeble, smooth, the upper edges obtuse; claws long, sharp, flattened, and fringed with woolly hair. The body and fore-legs of a light brown colour, marked with rather large, faint-red blotches.

HAB. Philippine Islands.

This species is very closely allied to *Parthenope (Lambrus) diacantha*, De Haan (F. J. Tab. xxiii. Fig. 1.), but it differs from that crustacean in the greater comparative length of the fore-legs; in the fifth joint having intermediate small spines between the five larger ones, which latter, moreover, are different in form; and in having but two spines on either side, extending from the postero-lateral margins of the carapace, whereas in *Parthenope (Lambrus) diacantha*, there are three on either side.

The *Lambri* are extremely sluggish in their movements, relying for safety not in muscular force, but in the disguised nature of their bodies, which, owing to their similarity to the gravelly floor on which they are generally found, must afford a protection from their enemies. Many species appear, indeed, at first sight to be made up of a conglomerated mass of small stones and sand. The *Lambri* are very numerous throughout the China Sea, where they live in about twelve or twenty fathoms, upon the submerged beds of broken shells and muddy gravel which constitute the floor of that sea.

#### 6. LAMBRUS LACINIATUS, De Haan.

*Thorace* multo latiore quam longo, margine laciniato, manibus carinâ externâ et mediâ 15-17 spinis, conicis validis granulatis armatis, carinâ internâ tuberculatis; fronte in spinam basi dilatatam productâ, pedum posteriorum tibiis tarsisque margine superiore acuto-carinatis.

HAB. Japoniam.

*Carapace* much wider than long, the margin laciniated; fifth joint of fore-legs with the external and middle keels armed with from fifteen to seventeen strongly-granulated conical spines; internal keel tuberculated; front produced into a spine dilated at the base; fourth and fifth joints of hind legs acutely carinated on the upper margin.

HAB. Japan.

*Lambrus laciniatus*, De Haan, Faun. Japon.

#### 7. LAMBRUS VALIDUS, De Haan.

*Thorace* multo latiore quam longo, tuberculis fragiformibus echinato, margine laciniato; manibus carinâ externâ et mediâ spinis 11-12 conicis validis granulatis armatis, interiore vix tuberculatis; fronte in spinam angustam productâ; manibus carinâ mediâ tuberculis 12 armatis; pedum posteriorum tibiis tarsisque margine superiore obtusis.

HAB. Japoniam.

*Carapace* much wider than long, covered with fragiform tubercles, margin laciniated, external and middle keel of the hands armed with eleven or twelve strongly granulated conical spines, inner keel scarcely tuberculated, front produced into a narrow spine; the

middle keel of the hands armed with twelve tubercles, tibiæ and tarsi of the hinder legs obtuse on the upper edge.

HAB. Japan.

*Parthenope (Lambrus) valida*, De Haan, Faun. Japon. t. 22. f. 1. (mas.) t. 22. f. 2. (femina.)

#### 8. LAMBRUS LONGIMANUS.

Fronte externè parvâ subeminente, horizontali, tribus dentibus.

HAB. Oram Brunensem, Insulas Philippinas.

*Front* extremely small, slightly prominent, horizontal, and formed of three teeth.

HAB. Coast of Borneo, Philippine Islands.

When alive, this curious species is of a stone colour, with the under surface pinkish. Numerous specimens were dredged by us from a gravelly bottom, in about thirty-five fathoms water.

*Lambrus longimanus*, Leach, Lin. Trans. t. 12. p. 310; *Cancer longimanus*, Linn. Mus. Lud. Ulr. p. 441. Syst. Nat. 2. 1047, 42; *Lambrus pelagicus*, Rüppell, t. 4. f. 1? Rumph. pl. 8. f. 2.

#### 9. LAMBRUS DIACANTHA, De Haan.

Thorace trigono vix æque lato ac longo, verrucoso, postice utrinque in spinam acutam dilatato; chelis æqualibus; pedibus levissimis.

HAB. Maria Orientalia.

Minute, with a trigonal carapace hardly as long as wide, warty, dilated posteriorly on both sides into a sharp spine, fore-legs equal, hinder legs very smooth.

HAB. Eastern Seas.

*Parthenope (Lambrus) diacantha*, De Haan, Faun. Japon. t. 23. f. 1.

#### 10. LAMBRUS SERRATUS, Edwards.

Marginibus latero-posterioribus thoracis serie trium parvarum, æqualium spinarum armatis.

HAB. Insulas Philippinas.

Latero-posterior margins of the carapace armed with a row of three, small, equal spines.

HAB. Philippine Islands (Corregidor); Cuming.

*Lambrus serratus*, Edw. Crust. 1. 357. Seba. 3. t. 20. f. 12.

## 2. CRYPTOPODIA, Edwards.

### 1. CRYPTOPODIA DORSALIS, Adams & White. Tab. 5. Fig. 6.

*Thorace* depresso, permagno, triangulari, in medio paululum elevato, bis latiore quam longo, postice paululum sinuato; ad margines magnis rotundatis crenationibus valde distinctis; majore parte tergi parvis pustularibus elevationibus obsitâ; duobus profundis sulcis in posteriore parte thoracis, longitudinaliter dispositis, et paululum inclinatis ita ut formam lyræ exhibeant.

*Fronte* horizontali, valdè productâ, antice rotundatâ, tribus subæutis crenulationibus in utroque latere; oculis parvis, retractilibus.



*Chelis* longissimis et maximis, prismaticis, jugis angularibus, tuberculis rotundis, subobtusis, ex ordine dispositis, armatis; quatuor posteribus pedum paribus gracillimis parvis, pari longitudine, et omnino celatis sub lateralibus lamellaribus extensionibus thoracis.

*Abdomine* lævi, septem articulis, serie parvorum tuberculorum ad utrumque latus subeminentis intermedie lineæ: articulo penultimo ceteris latiore.

Vivus colore turbide-carneolo, fuscis distinctionibus, et minutis nigris punctis; in utràque chelâ croceâ lineari maculâ; superficie inferiore albâ, subrubro colore in pectore. Siccatus obscuro, turbido, albo colore est.

HAB. Mare Suluense; fundo scruposo.

*Carapace* flattened, very large, triangular, slightly elevated in the middle, nearly twice as wide as long, slightly sinuated posteriorly, strongly marked round the edges with coarse, rounded crenations; the greater part of the back covered with slight pustular elevations; on the posterior part of the carapace two deep grooves, placed longitudinally, and slightly bent, so as to have a lyre-shaped form.

*Front* horizontal, much produced, rounded anteriorly, and having three rather sharp crenulations on either side, eyes small, retractile.

*Fore-legs* very long and large, prismatic in form, with the angular ridges armed with regular, round, rather blunt tubercles; the four hind pairs of legs very slender, small, equal in length, and entirely concealed beneath the lateral lamellar extension of the carapace.

*Abdomen* smooth, seven jointed, with a row of small tubercles on either side of the slightly prominent, middle line; penultimate joint wider than the rest. When alive it is of a dirty flesh-colour, with brown markings, and minute black specks; on each chela there is an orange, linear spot; the under surface is of a dead white, with a reddish tinge on the breast. In the dried state it is of a dull, dirty white.

HAB. Sooloo Sea; twenty fathoms, stony bottom.

The species of this genus resemble those of *Calappa*, in their habit of simulating death when disturbed, folding the chelæ close to the front of the carapace, and concealing their legs under the dilated sides of the carapace. They are always found in deep water, while the *Calappidæ* are observed on sandy flats, under the shelter of stones, or even sometimes buried in the sands.

In the distinct and beautiful species of the singular genus described above, the lyre-shaped grooves on the carapace at once distinguish it from the other two known species; it, however, differs from the *Cryptopodia fornicata* of Herbst, and the *C. angulata* of Edwards and Lucas, in other and minor particulars. The carapace is narrower and wider than the same part in *C. fornicata*, and the posterior edge is furnished with coarser and rounder crenations, the ridges on the chelæ have blunter tubercles; the front, moreover, is longer, more rounded in outline, and more deeply crenulated. From *C. angulata*, Edwards and Lucas, (Archives du Muséum, vol. ii. t. 28. f. 15-19,) described in 1841, it differs in the rounded form of the posterior portion of the carapace, which, in that species, is sharply angulated and spiniferous, and also in the

minute incisions, instead of crenatures, on the posterior edge of the carapace. Their species, the locality of which is unknown to Messrs. Edwards and Lucas, is probably a native of the Eastern Archipelago, and with our new *C. dorsalis* forms a very interesting addition to a genus which has been hitherto limited to but one species.

2. CRYPTOPODIA FORNICATA, Junr. *Herbst.* t. 6. f. 4.

In juniore thorax multo triangularior, ad angulos rotundior, postice directior, et superficies dorsalis pluribus pustulis obsita est, quam in animalibus adultis; chelæ etiam breviores et crassiores sunt, frons latior, rotundatior et distinctius crenulata, oculi majores, juga dorsalia eminentiora.

HAB. Mare Sinense; vadis submersis concharum mortuarum et lapidum.

Our figure represents, most probably, the young of this species; the carapace is more decidedly triangular, more rounded at the angles, straighter behind, and the dorsal surface more covered with pustules than in the adult individuals; the chelæ, moreover, are shorter and comparatively thicker, and the front is wider, more rounded and distinctly crenulated, the eyes are of comparatively greater size and the dorsal ridges more prominent.

HAB. China Sea; submerged banks of dead shells and stones.

3. GONATONOTUS, *Adams & White.*

*Thorax* pentagonalis, depressus; anguli laterales acutissimi.

*Frons* latissima, lamelliformis, dilatata, rotundata, ad fines subnictata; oculi magni, eminentes, pedunculi breves in nictu profundiore ad latus inserti; antennæ exteriores, appendice terminali elongatâ.

*Chelæ* subcrassæ; carpus rotundatus et interne spinosus; ungues in margine serrati.

*Pedes* tertii et quarti paullo longiores secundus et quintis; articuli tarsales secundi, tertii, quarti et quinti parium, æquali magnitudine et crassitudine; quinto pedum pari supra quartum inserto.

*Abdomen* feminae septem articulis, tribus vel quatuor articulorum basium supra conspiciendis. Mas ignotus.

*Carapace* pentagonal, depressed; lateral angles very sharp.

*Front* very wide, lamelliform, dilated, rounded, slightly notched at the end; eyes large, prominent, peduncles short, inserted in a rather deep notch on the side. Outer antennæ with the terminal appendage elongated.

*Fore-legs* rather thick; fourth joint or wrist, rounded and spined on the inside, claws serrated on the edge.

Third and fourth pairs of legs rather longer than the second and fifth, tarsal joints of second, third, fourth and fifth pairs of equal size and thickness; fifth pair of legs inserted above the fourth pair.

*Abdomen* of female, seven-jointed, three or four of the basal joints seen from above. Male unknown.

This genus is allied to *Eumedonus*.

1. GONATONOTUS PENTAGONUS, *Adams & White*. (Tab. VI. Fig. 7.)

*Thorace* supra confertim verrucoso, verrucis depressis; robustâ carinâ dorsali, ab uno laterali angulo ad alterum pertinente, duobus tuberculis in medio.

*Fronte* medio sulcatâ, medio dorsi duabus longitudinalibus impressionibus; ultimo articulo abdominis in feminâ verrucoso. Primo pedum pari verrucoso, digitis sulcatis.

HAB. Oram Brunensem.

*Gonatonotus pentagonus*, Adams and White, Proc. Zool. Soc.

*Carapace* above closely verrucose, the warts depressed; a rather strong ridge across the back, extending from one lateral angle to the other, with two tubercles in the middle; the front grooved down the middle; the centre of the back with two longitudinal impressions; terminal joint of abdomen, in the female, verrucose.

HAB. Coast of Borneo.

When alive, this species is of a brick-red colour, with the chelæ crimson, and the under surface rufous.

4. CERATOCARCINUS, *Adams & White*.

*Thorax* subpentagonalis; latera supra insertionem chelarum in magnam spinam paululum prorsum directam producta.

*Frons* lata et prominens, cornibus conicis inter se valde distantibus utrinque eminens; oculi parvuli, pedunculis brevibus, sulcis in lateribus rostri aptatis. Exteriores antennæ permagnæ, terminales appendices certe dimidiâ longitudine antennarum, et ultra cornua rostri prominentes.

*Chelæ* valde elongatæ; latera fere parallela, carpus subpyriformis, sine spinis in parte interiore; acies digitorum convenientes et serratæ. Secundum par pedum longius et gracilius quam postrema tria paria; articulus tarsalis gracilis et elongatus; quartum et quintum æqualia longitudine; quintum par, ut in *Eumedono*, tam alte positum ut quarti paris insertionem fere celet; tarsales articuli horum pedum crassi; unguis ad extremitatem translucidus.

Abdomen maris ut in *Eumedono*: femina incognita.

HAB. Maria Orientalia.

*Carapace* somewhat pentagonal; the sides, over the insertion of the first pair of legs, produced into a large spine directed slightly forwards.

*Front* wide and prominent, projecting on each side in the form of conical horns, widely separate from each other. Eyes rather small, peduncles short, the eye fitting into a groove on the side of the front; outer antennæ considerably developed, the terminal appendages at least half the length of the whole antennæ, and projecting beyond the horns of the front.

*First pair of legs* much elongated, the sides nearly parallel, the wrist somewhat pear-shaped, without spines on the inside, the edges of the pincers meeting and serrated. Second pair of legs longer and more slender than the last three pairs; the tarsal joint slender and elongated; fourth and fifth pairs of legs of equal length; the fifth pair, as in *Eumedonus*, placed so high as nearly to conceal the insertion of the fourth pair; the tarsal joints of these legs thick; the claw at the end translucent.



Abdomen of male, as in *Eumedonus*; that of female unknown.

This genus is closely allied to *Eumedonus* of Professor Milne Edwards (Crust. vol. i. p. 349), and, like it, comes from the Eastern Seas.

1. CERATOCARCINUS LONGIMANUS, *Adams & White*. (Tab. VI. Fig. 6.)

Duobus acuminatis transversis tuberculis, ad extremitatem pilis cristatis, in dorso thoracis, post oculos; primo pedum pari minutis verrucis obsito compluribus altis longitudinalibus sulcis; digitis basi exceptâ nigro-fuscis.

HAB. Oram Brunensem (Balambangan).

*Cerotocarcinus longimanus*, Proc. Zool. Soc.

Two pointed transverse tubercles, tufted with hair at the end, on the back of the carapace, behind the eyes; the first pair of legs covered with minute warts and with several deep longitudinal grooves; the pincers blackish brown, except at the base.

HAB. North coast of Borneo (Balambangan).

When alive, the colour of this species is blood-red, with five light bands across the carapace.

5. PARTHENOPE, *Fabricius*.

1. PARTHENOPE CALAPPOIDES, *Adams & White*. (Tab. V. Fig. 5.)

*Thorace* subtrigono postice truncato, antice rotundato, dorso verrucosiformibus subdepressis tuberculis obsito; lateribus in parte anteriore obtuso rotundato lobo; alto sinu post lobum; branchialibus regionibus permagnis, compluribus tuberculis, jugo majorum tuberculorum ad angulos latero-posteriores pertinentium et brevibus æquis intervallis circum margines alte incis. Medianâ regione serie magnorum rotundorum tuberculorum, anterioribus tuberculis proxime appropinquantibus, posterioribus distantibus; duabus caveis inter laterales et medianas regiones, et post caveas duabus altis foveis.

*Fronte* latâ, obtusâ, antice rotundatâ, ad extremitatem submarginatâ, denticulis in lateribus, tuberculiferâ in dorso.

*Chelis* breviusculis et crassis; brachio verrucoso, validâ anteriore spiniferâ cristâ; carpo externe lævi, serie tuberculorum in superficie interiore; manu serie magnorum tuberculorum pertinentium a digito superiore intus ad basin articuli, exteriore carinâ lævi et sine spinis; digitis magnis et validis, inferiore tribus magnis dentibus.

Abdomine in feminâ septem articulis, depressis tuberculis obsito.

HAB. Maria Orientalia.

*Carapace* subtrigonal, truncate behind, rounded in front, upper surface covered with wart-like, rather depressed tubercles; sides at the forepart with an obtuse rounded lobe, behind which is a deep notch; branchial regions very much developed, covered with tubercles, with a ridge of larger tubercles extending to the latero-posterior angles, and deeply incised at short regular intervals round the edges; the middle region with a row of large rounded tubercles, the anterior of which are close together, and the posterior isolated; two hollows between the lateral and middle regions, and two deep pits behind the hollows.

*Front* wide, obtuse, rounded anteriorly, slightly emarginate at the end, faintly dentated on the sides, and tuberculiferous on the upper surface.

*Fore-legs* rather short and stout; third joint verrucose, with a strong anterior spiniferous crest; fourth joint smooth externally, with a row of tubercles on the inner surface; fifth joint with a row of large tubercles, extending from the upper claw to the base of the joint, on the inner surface, outer keel smooth and without spines; claws large and strong, the lower one with three large teeth.

*Abdomen*, in the female, seven jointed, and covered with flattened tubercles.

HAB. Eastern Seas.

## 2. PARTHENOPE TARPEIUS, *Adams & White*. (Tab. VII. Fig. 2.)

*Thorace* subtrigono, compluribus lævibus depressis rotundatis tuberculis, in regionibus medianâ et laterali majoribus obsito: lobo rotundato integro, in margine latero-anteriore; alto sinu lobum a lateralibus regionibus dividente; lateralibus regionibus dilatatis, rotundatis, postice angustatis, magnis superficialibus crenationibus circum margines; posteriore margine serie validorum obtusorum subconicalium tuberculorum extrorsum et retrorsum directis.

*Fronte* latâ obtusâ rotundatâ subcrenulatâ, alte sulcatâ, vix lævi in superiore superficie.

*Chelis* validis tuberculiferis, brachiis uno magno et compluribus minoribus tuberculis in acie anteriore; carpo lævi, externe noduloso; manu subtuberculifero latere in interiore superficie; pedibus posterioribus depressis, marginatis depressis subtriangularibus obtusioribus processibus.

*Abdomine* in feminâ septem-articulato, obsito tuberculis, fimbriato crebris setis.

HAB. Maria Orientalia.

*Carapace* subtrigonal, covered with numerous smooth, depressed tubercles, larger in the middle and lateral regions; a rounded entire lobe on the latero-anterior margin, and a deep notch, which separates it from the lateral regions, which are dilated, rounded, narrowed posteriorly, with large superficial crenations round the edges; the hind margin with a row of strong, obtuse, sub-conic tubercles, directed outwards and backwards.

*Front* wide, obtuse, rounded, subcrenulate, deeply channelled, and nearly smooth on the upper surface.

*Fore-legs* strong, tuberculiferous; third joint with one large and several smaller tubercles on the front edge; fourth joint smooth, externally nodulous; fifth joint with a rather faint tuberculiferous ridge on the inner surface; hind-legs flattened, edged with flattened, sub-triangular, bluntish processes.

*Abdomen*, in the female, seven-jointed, covered with tubercles, fringed with close-set setæ.

HAB. Eastern Seas (Caramatta Passage).

## LAMBRUS, *Leach*.

[*Additional Species.*]

### 11. LAMBRUS HOPLONOTUS, *Adams & White*. (Tab. VII. Fig. 3.)

*Thorace* subpentagono, antice acuminato, ad latera subangulato, postice lato, obsito rotundis æquis tuberculis, majoribus et crebrioribus in regionibus medianâ et branchiali; lateribus crenatis autice, armatis

in medio crassis obtusis tuberculiformibus processibus, postice desinentibus in longâ prominente acuminatâ spinâ extrorsum et paululum retrorsum directâ ; acie posteriore octo validis spinis instructâ, marginibus thoracis, cum tuberculis et spinis, fimbriatis longis rigidis subcurvatis setis.

*Fronte* acuminate triangulari, aciebus subcrenulatis et validâ spinâ supra canthum.

*Chelis* ter thorace longioribus ; brachiis serie crebrorum æquorum tuberculorum antice ; quatuor vel quinque magnis rotundatis tuberculis, paululum inter se distantibus in latere exteriori, quinque validis spinosis processibus a margine posteriore retrorsum et extrorsum tendentibus ; carpo serie tuberculorum supra, et tribus validis spinis externe ; manu cristâ octo validarum spinarum supra, serie tuberculorum interne, et serie fere duodecim crassarum obtusarum spinarum in acie inferiore.

Pedibus posterioribus gracilibus minoribus, duobus posterioribus paribus longis subcurvatis setis fimbriatis.

*Abdomine* (in mare) quinquarticulato, crebris setis circum margines.

HAB. Maria Orientalia.

*Carapace* subtriangular, anteriorly acuminate, somewhat angulated at the sides, wide behind, covered with rounded equal-sized tubercles, larger in the middle and branchial regions, the sides anteriorly crenated, armed in the middle with thick, obtuse, tuberculiform processes, and ending posteriorly in a long, prominent, acuminate spine, directed outwards and a little backwards ; posterior edge with eight strong spines and tubercles, the spines fringed with long, rigid, slightly curved hairs.

*Front* acuminate triangular, the edges subcrenulated, and with a strong spine above the orbit.

*Fore-legs* three times longer than the carapace, the third joint with a row of equal-sized tubercles anteriorly ; four or five large rounded tubercles slightly separated from each other on the outer surface ; five strong spiny processes, extending backwards and outwards from the hinder margin ; the third joint with a row of tubercles above and three strong spines externally ; the fifth joint with a crest of strong spines above, a row of tubercles internally, and a row of about twelve thick, obtuse spines on the lower sharp edge.

Hind-legs slender, rather small, the two posterior fringed with long slightly curved setæ.

*Abdomen* (in the male) five-jointed, the crenated margins beset with short hairs.

HAB. Eastern Seas.

#### IV. CANCERIDÆ.

In their habits, the *Canceridæ* are evasive and prone to concealment, passive in defence, and though voracious and predatory, they do not exhibit the same activity, intelligence, and cunning as the *Ocypodidæ*, the *Gonoplacidæ*, or the *Grapsidæ*. The *Æthra* inhabit deep water, living in sandy mud, among shells and coral débris, while such genera as *Carpilius*, *Atergatis*, *Xantho*, and *Chlorodius*, select shallow waters along the shores, preferring weedy and rocky bottoms, where they hide among the stones, and prey on shrimps and small fishes. *Pilumnus* and *Trapezia* are tolerably lively in their movements ; the latter genus having the



same habit of hiding and shuffling under stones as *Porcellana*, but unlike that genus it inhabits the coral branches of deep sunken reefs and the cavities of madrepores.

At the island of Koo-kien-san a species of *Eriphia* was common, hiding under stones below high-water mark, having the carapace, legs, and chelæ covered with stiff red hairs, the colour of the shell itself being dark greenish brown, the legs lighter and banded with dark brown, while the under surface of the body was ultramarine blue, and the terminal joint of the abdomen the same colour.

The *Zozymus* lives among rocks, hiding in holes, while *Pilumnus* is sluggish in its movements, hiding in the crevices and cavities of the under surface of stones below high-water mark.

## 1. CARPILIUS, *Leach*.

### 1. CARPILIUS CINCTIMANUS, *White*. (Tab. VII. Fig. 4.)

*Thorace* sine dente laterali, latissimo; lateribus in quatuor lobos divisus; digitis nigris, subalbis ad extremitatem; manu in medio latâ nigrâ fasciâ cum nigro digiti immobilis commixtâ; thorace et pedibus lævibus, intense rubris.

HAB. Insulas Philippinas.

*Carapace* without lateral tooth; very wide; the side divided into four lobes; claws of fore-legs black, whitish at the tip; fifth joint of fore-legs with a broad black band in the middle which runs into the black of the immovable claw.

Carapace and legs smooth, of a rich red colour.

HAB. Philippine Islands.

### 2. CARPILIUS SIGNATUS, *Adams & White*. (Tab. X. Fig. 1.)

*Thorace* valde convexo, supra punctis carinisque latiusculis impresso, aurantiaco, signaturis pallide-citrinis variegato.

HAB. In littore Mauritiano.

*Carapace* very convex, the upper surface distinctly punctulated and beautifully marked, in the dried specimen, with symmetrical figures of a pale yellow on an orange ground, which are well expressed in our figure; the several regions are separated from each other by shallow grooves, rendering them much more prominent than in other species of the genus; the anterior convex margin is furnished with long crenulations, the crenulation in front being longer than the one behind.

*Front* slightly projecting, deeply notched in the middle line with an obtuse tubercle before, and a smaller one behind the eyes.

*Fore-legs* large, with the claws very black, the under claw with four obtuse tubercles, the hind-legs as in *C. corallinus*, but the fifth pair are unfortunately wanting.

HAB. Isle of France.

2. ATERGATIS, *De Haan*.1. ATERGATIS SINUATIFRONS, *Adams & White*.

*Thorace* marginali membro integerrimo, crassiore, omnino subfusco-rubro colore.

*Fronte* tribus lobis, unoquoque in medio nictato; digitis chelarum cristis pilorum, nigris, summâ extremitate albâ.

*Thorace* quatuor digitorum latitudine.

HAB. Mauritium.

*Carapace* with the marginal limb very entire, rather thick, and of a uniform brownish red.

*Front* with three lobes, each notched in the middle; claws of fore-legs with tufts of hair; claws of a black colour, with the extreme tip white.

Width of carapace four inches.

HAB. Mauritius.

2. ATERGATIS SUBDIVISUS, *Adams & White*. (Tab. VIII. Fig. 3.)

*Thorace* membro marginali quatuor lobis valde indistinctis diviso; majore parte summi thoracis intense rubrâ, postice subrubrâ; digitis nigris, basi digitorum mobilium flavâ.

*Fronte* thoracis duobus rectis lobis, proxime oculum sinuatâ.

*Thorace* trium digitorum octo linearum latitudine.

HAB. Insulas Philippinas.

*Carapace* with the marginal limb divided into four very indistinct lobes; the greater part of upper surface of carapace deep red with yellowish spots, behind paler. Claws of fore-legs black, base of movable one yellow; front of carapace with two rather straight lobes, sinuated close to the eye.

Width of carapace three inches, eight lines.

HAB. Philippine Islands.

This species comes near *A. marginatus*.

3. ATERGATIS INSULARIS, *Adams & White*. (Tab. VIII. Fig. 2.)

*Thorace* anterioribus lateribus acie incisore; parte thoracis post hanc punctatâ; reliquâ superiore superficie fere levi, tribus vel quatuor lineis impressis antice.

*Manibus* rugosis præsertim supra; digitis et mobilibus et fixis profunde sulcatis. Flaveolo rubro, pedibus colore intensiore; digitis chelarum pallidis; cornu colorato.

HAB. Insulas Philippinas.

Latero-anterior sides of carapace with a cutting edge; part of carapace behind this punctate, the rest of upper surface very nearly smooth, with three or four impressed lines in front; fifth joint of fore-legs rugose, especially above; claws, both movable and fixed, deeply channelled. Pale yellowish-red; legs darker; claws of fore-legs pale horn-colour.

HAB. Philippine Islands. Cuming.

4. ATERGATIS LATERALIS, *Adams & White*. (Tab. VIII. Fig. 1.)

*Thorace* lævi irregulari, lineis impressis, lateribus latero-anterioribus in tres dentes latos divisus.

*Fronte* latâ, denticulatâ, iu medio subemarginatâ.

HAB. Maria Orientalia.

*Carapace* smooth, irregular, with numerous impressed lines; latero-anterior margins divided into three broad teeth.

*Front* wide, denticulated, subemarginate in the middle; fifth joint of fore-legs rugose, claws tipped with dark brown.

HAB. Eastern Seas.

3. ACTÆA, *De Haan*.1. ACTÆA NODULOSA, *Adams & White*. (Tab. VIII. Fig. 4.)

*Thorace* et pedibus supra dense obsitis rotundatis tuberculis maximis in chelis et anterioribus marginibus; tuberculo in cantho inferiore; thorace in medio longitudinaliter impresso; acie posteriore rectâ et duabus lineis transversis parvorum tuberculorum instructâ. Chelis et superiore et inferiore carinis longitudinalibus; cornu colorato.

HAB. Mauritium.

*Carapace* and legs, above, thickly covered with rounded tubercles, largest on fore-legs and fore-margins of carapace; a tubercle on the under orbit; carapace, in the middle, longitudinally impressed; the posterior edge straight and furnished with two transverse lines of small tubercles; claws, both upper and under, with longitudinal keels, and horn coloured.

HAB. Mauritius.

4. XANTHO, *Leach*.1. XANTHO DEPRESSA, *Adams & White*.

*Thorace* valde depresso, antice tuberculato, compluribus tuberculorum acuminatis.

*Fronte* in medio profunde nictatâ; lateribus tribus dentibus. Manibus extra tuberculatis, tribus posterioribus articulis pedum parvis tuberculis, paucis capillis.

HAB. Insulas Philippinas.

*Carapace* much depressed; in front tuberculated, many of the tubercles sharp-pointed.

*Front* deeply notched in the middle; sides with three teeth; fifth joint of fore-legs tuberculated on the outside; the three last joints of legs slightly tuberculated, and with a few hairs.

HAB. Philippine Islands.

2. XANTHO CULTRIMANUS, *Adams & White*.

*Thorace* supra convexiore; fronte nictatâ; lateribus quatuor dentibus; parte anteriore et lateribus parvulis tuberculis; thorace post oculos impressis lineis quæ in medio conveniunt; manibus quatuor longitudinalibus impressis lineis in superficie exteriori quæ parvis subasperis tuberculis exornatur; thorace et pedibus flaveolis rubro commixtis.

HAB. Insulas Philippinas.



*Carapace* slightly convex above, front notched, sides with four teeth; front part and sides with very slight tubercles; carapace, behind the eyes, with impressed lines, which meet in the middle; fifth joint of fore-legs with four longitudinal impressed lines on the outside, which is covered with small roughish tubercles; carapace and legs pale yellowish varied with red.

HAB. Philippine Islands. Cuming.

### 3. XANTHO LAMELLIGERA, *Adams & White*.

*Thorace* supra convexiore, quatuor dentibus in utroque latere; superiore parte ad latera subsuberculari. Manibus extra asperis; acie carpi superiore margine dentato; acie manuum et supra et infra margine lamellari; pedibus posterioribus in acie superiore lamellaribus.

HAB. Mauritium.

*Carapace* rather convex above, with four teeth on each side, upper part on the sides slightly tubercular, fifth joint of fore-legs rough on the outside, edge of fourth joint, above, with a toothed margin; edge of fifth joint, both above and below, with a lamellar border; hind-legs, on the upper part, lamellar.

HAB. Mauritius.

## 5. CHLORODIUS, *Edwards*.

### 1. CHLORODIUS HIRTIPES, *Adams & White*. (Tab. XI. Fig. 4.)

*Thorace* levi.

*Fronte* latissimâ, vix in medio nictatâ; lateribus quatuor dentibus obtusis.

*Chelis* longis, brachio crassissimo; acie superiore ad basin uno crasso dente; pedibus posterioribus multis fuscis eapillis.

HAB. Insulas Philippinas.

*Carapace* smooth.

*Front* very broad, scarcely notched in the middle; the sides with four blunt teeth.

*Fore-legs* long; fourth joint very thick, upper edge, at the base, with one thick tooth; hind-legs with many brownish hairs.

HAB. Philippine Islands.

### 2. CHLORODIUS FRAGIFER, *Adams & White*. (Tab. XI. Fig. 2.)

*Thorace* obsito tuberculis rotundatis bacciformibus gregatim dispositis, definitis impressis lineis separatis; pediculo oculi duabus spinis prope oculum dispositis; pedibus tuberculis oryziformibus obsitis, albis, latâ earmineâ longitudinali lineâ per medium in fronte; quinque carmineis notis in posteriore thoracis parte.

HAB. Insulas Philippinas.

*Carapace* covered with roundish berry-like tubercles, arranged in groups and separated by definite impressed lines; pedicel of eye with two spines close to the eye; legs covered with rice-like tubercles; white, with a broad pinkish longitudinal line down the middle in front; five pink marks on hind part of carapace.

HAB. Philippine Islands.

3. CHLORODIUS PILUMNOIDES, *Adams & White*. (Tab. IX. Fig. 3.)

*Thorace* et pedibus fuscis pilis obsitis; thorace depressiore; lateribus tribus dentibus, spinis exornatis, priore parte thoracis compluribus eminentiis et spinosis tuberculis asperâ. *Manibus* magnis; acie superiore serratâ extra et supra tuberculis majoribus; digitis extra et supra sulcatis compluribus tuberculis ad basin digiti mobilis; digitis nigris; concavis extremitatibus albis; pedibus posterioribus supra serratis.

HAB. Singhapuram et Insulas Philippinas.

*Carapace* and legs covered with brown hair; carapace somewhat depressed; sides with three teeth covered with spines; fore part of carapace with several bosses, and rough with spiny tubercles; four transverse raised lines on hind part; the inmost the shortest; fifth joint of fore-legs large, upper edge serrated on the outside and top with rather large tubercles. *Claws* on the outside and top channelled; several tubercles at the base of the movable claw: claws black, the hollowed ends white; hind-legs serrated above; second and third joints with three rows of serratures.

HAB. Singapore. Philippine Islands.

4. CHLORODIUS AREOLATUS, *Milne Edwards*. (Tab. XI. Fig. 3.)

*Thorace* tuberculis et granulis multis obsitis.

*Fronte* latâ, in lobos quatuor distinctos incisâ; margine latero-anteriori in quatuor dentes triangulares diviso, hiatu anguli canthi interno angusto.

*Chelis* granulosis, pedibus posterioribus sublævibus.

*Abdomen* (feminæ) articulis septem.

HAB. Insulas Philippinas.

*Chlorodius areolatus*, Milne Edwards, Crust. vol. i. p. 400.

*Carapace* covered with tubercles and granules.

*Front* wide, divided into four distinct lobes; latero-anterior margins short, nearly straight, and divided into four triangular teeth; fissure of orbital angle internal, narrow, lodging the movable joint of the outer antennæ.

*Fore-legs* granular; hind-legs and lower surface of body nearly smooth.

*Abdomen* (of female) seven-jointed, fringed with setæ.

HAB. Philippine Islands.

6. PANOPEUS, *Edwards*.1. PANOPEUS DENTATUS, *White*. (Tab. XI. Fig. 1.)

*Thorace* rotundato, lævi, postice coarctato, lateribus productis tuberculis postfrontalibus transversis irregularibus; margine latero-anteriore lobis quinque magnis dentiformibus, lineis elevatiusculis duabus ab angulo latero-anteriore porrectis.

*Fronte* in lobos quatuor divisâ; angulo externo canthi acuto.

*Chelis* in carpo dentibus duobus conicis, manu externe granulâtâ, interne valde reticulâtâ, ad basin lineâ tuberculâtâ; digito superiore inermi, digito inferiore tuberculis quinque depressis.

*Abdomine* (maris et feminæ) articulis septem.

HAB. Insulas Philippinas.

*Carapace* rounded in front, produced at the latero-anterior angles, and contracted behind, upper surface smooth, marbled with a row of irregular transverse tubercles extending across the postfrontal portion; latero-anterior margin with five large, prominent, dentiform lobes, the anterior three obtuse, the two posterior acute; two curved, slightly elevated lines proceeding inwards from the latero-anterior angle.

*Front* divided into four lobes, the two inner wide and obtuse, the two outer narrower and more prominent, upper surface slightly concave, outer angle of orbit acute.

*Fore-legs* with two strong teeth on the inner and upper part of the fourth joint, the fifth joint slightly granulated externally, coarsely reticulated internally, and with a tubercular ridge at the base; upper claw unarmed, under claw with five round depressed tubercles.

*Hind-legs* transversely rugose, fringed with short, stiff setæ.

*Abdomen* (both of male and female) seven-jointed, the former fringed with long, the latter with short, setæ.

HAB. Philippine Islands.

## 2. PANOPEUS CAYSTRUS, *Adams & White*. (Tab. IX. Fig. 2.)

*Thorace* subtrigonal, antice convexo, marginibus rotundatis lineis impressis obsitis; margine latero-anteriore serratulis tribus subdistantibus.

*Fronte*, in medio, emarginatâ, supra sulcatâ, angulo externo canthi obtuso.

*Chelis* lævibus, digito superiore arcuato inermi, digito inferiore tuberculis quatuor parvis acutis.

*Abdomine* (feminæ) articulis septem.

HAB. Maria Orientalia.

*Carapace* subtrigonal, rounded in front and at the sides, surface smooth, marked with faintly impressed lines; latero-anterior margin with three rather distant sharp serrations.

*Front* emarginate in the middle, without lobes, a trifold groove on the upper surface; outer angle of orbit rather obtuse.

*Fore-legs* smooth, upper claw strong, arched, unarmed; lower claw with three or four small acute tubercles.

*Hind-legs* smooth, fringed on the last and penultimate joints with long hairs.

*Abdomen* (of female) seven-jointed, the second joint narrower than the rest, fringed with short stiff setæ.

HAB. Eastern Seas.

## 3. PANOPEUS FORMIO, *Adams & White*. (Tab. IX. Fig. 1.)

*Thorace* latiore quam longiore, lateribus rotundatis, lineâ valde distinctâ ab angulo latero-anteriore projectâ; margine latero-anteriore lobis quatuor longis rotundatis, dente parvo ad angulum latero-anteriorem.

*Fronte* lobis quinque subobsoletis, supra sulcatâ, angulo externo canthi fissurâ parvâ.



*Chelis* manu subtuberculatâ, digito inferiore tuberculo magno cum multis tuberculis parvis.

*Abdomine* (maris) articulis septem, articulo tertio ad latera dilatato.

HAB. Maria Orientalia.

*Carapace* transversely oval, the sides rounded, surface smooth, marked with faintly impressed lines, a strongly marked line extending across the middle from the latero-anterior angle, and a fainter line posteriorly; latero-anterior margin with four long, rounded crenulations, and a small tooth at the latero-anterior angle.

*Front* with four slightly developed lobes, a bifurcate groove on the upper surface, outer angle of orbit slightly fissured.

*Fore-legs* smooth, with the upper and outer surface of fifth joint faintly tuberculated, upper claw unarmed, lower claw with one large and several small tubercles.

*Hind-legs* transversely rugose and slightly granulated, not fringed with hairs.

*Abdomen* (of male) seven-jointed, the third joint dilated at the sides; fringed with short stiff setæ.

HAB. Eastern Seas.

#### 7. *ÆGLE*, *De Haan*.

##### 1. *ÆGLE* *RUGATA* (sp.), *Milne Edwards*. (Tab. VIII. Fig. 5.)

*Thorace* granulis minutis dense dispositis; margine latero-anteriore lobis quatuor rotundatis distinctis.

*Chelis* sublævibus.

*Abdomine* (feminæ) articulis septem.

HAB. Insulas Philippinas.

*Zozymus rugatus*, Edw. Crust. vol. i. p. 385.

*Carapace* covered with small close-set granulations; latero-anterior margins divided into four rounded very distinct lobes.

Surface of body and fore-legs comparatively smooth.

*Abdomen* (of female) seven-jointed, and fringed with long, close-set, coarse setæ.

HAB. Philippine Islands.

#### 8. *GALENE*, *De Haan*.

##### 1. *GALENE* *OCHTODES* (*junior*), *Herbst*. (Tab. X. Fig. 2.)

*Cancer* thorace lævi, lateribus verrucosis.

*Fronte* bilobâ, brachiis, carpis, manibus, digitisque verrucosis.

HAB. Maria Orientalia.

*Galene ochtodes*, Mus. Cat. p. 18. *Cancer ochtodes*, Herbst. vol. 1. p. 158. t. 8. f. 54.

*Carapace* smooth, sides verrucose.

*Front* bilobed, second, third, and fourth joints of chelæ, and the claws, verrucose.

HAB. Indian Ocean.

We have figured a young specimen of this species, which does not seem to be common in collections.

## 9. PILUMNUS, *Leach*.

### 1. PILUMNUS DILATIPES, *Adams & White*. (Tab. IX. Fig. 4.)

*Thorace* latiore quam longiore, granulis multis distinctis setigeris obsito; regionibus lineis depressis distinctis separatis; margine latero-anteriore dentibus quatuor, magnis denticulatis.

*Fronte* emarginatâ, antice crenulatâ fasciculis duobus pilosis; margine superiore canthi multidentato.

*Chelis* externe tuberculis multis rotundatis obsitis, margine superiore setifero.<sup>1</sup>

Pedibus posterioribus valde dilatatis, tuberculis lineisque setigeris instructis.

*Abdomine* (maris) articulis septem, lævi.

HAB. Maria Orientalia.

*Pilumnus dilatipes*, White, Pro. Zool. Soc.

*Carapace* wider than long, covered with coarse granulations, each beset with several short setæ; the different regions divided by distinct shallow grooves; latero-anterior margin with four prominent denticulated teeth, the first small, the second wide, and the two posterior equal and triangular.

*Front* emarginate, with numerous serrations and with two tufts of straight setæ; upper margin of orbit with numerous dentations.

*Fore-legs* covered with granules and short stiff hairs on the outer and upper surface, smooth internally.

*Hind-legs* considerably dilated, beset with fine granulations and numerous rows of short bristles, the edges fringed with long hairs.

*Abdomen* (of male) seven-jointed and smooth.

HAB. Eastern Seas.

### 2. PILUMNUS SCABRIUSCULUS, *Adams & White*. (Tab. IX. Fig. 5.)

*Thorace* vix longiore quam latiore, granulis multis parvis setigeris obsito, regionibus lineis depressis vix distinctis separatis; marginibus latero-anterioribus dentibus tribus denticulatis.

*Fronte* prominente triangulari crenulatâ, margine superiore canthi unidentato.

*Chelis* tuberculis granulosis distinctis obsitis, parte superiore setis brevibus rigidis fimbriatâ.

Pedibus posterioribus scabriusculis, pilosis.

*Abdomine* (feminæ) lateribus subparallelis, septem articulis.

HAB. Maria Orientalia.

*Carapace* nearly as long as wide, covered with numerous granulations, each beset with several short setæ; the regions of carapace separated by several faintly impressed grooves, antero-lateral margins with three wide denticulated teeth fringed with stiff hairs.

*Front* subtriangular, slightly produced, finely crenulated on the margin, which is furnished with a single fringe of stiff setæ; upper edge of orbit with a single rounded dentation.

*Fore-legs* covered with numerous distinct granular tubercles on the upper and outer surface, and fringed with short hairs.

*Hind-legs* rough with granules and short hairs, arranged in transverse rows.

*Abdomen* (of female) villose, seven-jointed, the sides subparallel.

HAB. Eastern Seas.

### 3. PILUMNUS URSULUS, *Adams & White*. (Tab. IX. Fig. 6.)

*Thorace* vix longiore quam latiore, dense tomentoso, granulis multis rotundatis setigeris obsito, marginibus latero-anterioribus dentatis.

*Fronte* denticulatâ, fasciculis quinque pilosis longis instructâ.

*Chelis* granulosis, pilis longis dense coopertis.

*Abdomine* (maris) dense tomentoso, articulis septem.

HAB. Maria Orientalia.

*Carapace* nearly as long as wide, densely tomentose, covered with numerous large close-set granules beset with very long coarse hairs, latero-anterior margins dentated.

*Front* toothed, with five tufts of long straight hairs.

*Fore-legs* covered with coarse granulations, and very long, coarse, slightly curved hairs.

*Hind-legs* granular, thickly beset with numerous, long, coarse hairs.

*Abdomen* (of male) densely tomentose, seven-jointed.

HAB. Eastern Seas.

## V. PORTUNIDÆ.

The large species of this family are much esteemed as food among the poor islanders of the Meïa-co-shimahs, and in the markets of China large species of *Neptunus* (*N. pelagicus*), are frequently offered for sale. Two well-marked genera have been added to this group by our researches in the Eastern Seas, besides numerous species. The island of Balambangan, at the north end of Borneo, harbours the *Lupocyclus*, which is very active in its habits, keeping close in shore like *Lupa*, *Oceanus*, and other swimming crabs; it swims by rapid jerks along the bottom, and, when caught, will wound the fingers by striking side-ways with its spiny fore-legs. The other new genus, *Lissocarcinus*, was obtained at some considerable distance from land, concealed in the internode of a fragment of floating bamboo, and is a powerful swimmer. The *Cancer* (*Thalamita*) *admete* of Herbst, and the *Cancer* (*Thalamita*) *prymna* of the same Crustaceologist, besides three new species of *Amphitrite*, and a new species of *Neptunus*, were likewise procured.

### 1. LISSOCARCINUS, *Adams & White*.

*Pedipalpi externi* articulo tertio, ad basin, latiore quam longiore, ad marginem anteriorem non incisum prope angulum.



*Thorax* trapezoidalis, postice coarctatus.

*Frons* prominens, lamellaris, in medio valde incisa. Antennæ internæ articulo secundo elongato, usque ad fissuram porrecto.

*Pedes posteriores* pedibus *Portuno* simillimi.

*Abdomen* (feminæ) articulis septem lateribus subparallelis. Mas adhuc latet.

*External pedipalps* with the third joint broader at the base than long, and not notched at its anterior margin near the angle.

*Carapace* trapezoidal, considerably contracted posteriorly.

*Front* projecting, lamellar, deeply cleft in the middle. Inner antennæ with the second joint elongated and reaching to the commencement of the notch.

*Legs* very much as in *Portunus*.

*Abdomen* (of female) seven-jointed, the sides nearly parallel.

This generic group, described from a female, will be found an interesting connecting link between the genera *Portunus*, *Platyonychus*, and *Polybius*. We have named it *Polybioides* from its resemblance to the genus of Leach, which, as Professor Bell remarks, is of a more decided natatory character than any other Brachyurous form found on the British coast.

#### 1. LISSOCARCINUS POLYBIOIDES, *Adams & White*. (Tab. XI. Fig. 5.)

*Thorace* pentagonali, in fronte producto, postice coarctato, lævissimo, multis parvis rotundatis maculis, lineâ distinctâ ab angulo latero-anteriore projectâ; margine latero-anteriore valde dentato, dentibus prorsum inclinatâ.

*Fronte* lamellari, prominente, antice bifidâ, antennis lateralibus fronte occultis.

*Chelis* articulo quinto bicarinato; carinâ antice valde dentatâ. Pedibus posterioribus depressis, pari ultimo unguibus valde dilatatis.

HAB. Maria Orientalia.

*Carapace* five-sided, produced in front, narrowed behind, very smooth on the upper surface, and covered with numerous small round markings, a strong line extending from the latero-anterior angle across the carapace towards the middle line; latero-anterior margin strongly toothed, the teeth directed forwards.

*Front* lamellar, projecting, bifid anteriorly, covering and concealing the lateral antennæ, a wide space between the eyes.

*Fore-legs* with the fourth joint doubly keeled, the keels strongly toothed anteriorly.

*Hind-legs* flattened, the fifth pair with the penultimate joint more flattened than the corresponding joint of the other pairs, and with a greatly dilated flattened claw.

HAB. Eastern Seas.

#### 2. LUPOCYCLUS, *Adams & White*.

*Pedipalpi externi* articulo secundo ad apicem tenuiore (quam in *Lupâ*—*L. forceps*), articulo tertio minore (quam in *Lupâ*).

*Thorax* suborbicularis, postice coarctatus, margine latero-anteriore spinis acutis conicis prorsum inclinatis.

*Frons* semicircularis, in lobos quinque equales divisa; canthi margine superiore subfisso postice, dente magno, conico, curvato.

*Chelæ* longæ, spiniferæ, pedes posteriores graciles, compressæ, pari quinto valde dilatato.

*Abdomen* (maris) triangulare, articulis quinque; femina adhuc latet.

*External pedipalps* with the second joint rather more slender towards the tip (than in *Lupa forceps*), the third joint considerably smaller.

*Carapace* suborbicular, contracted posteriorly, latero-anterior margin with sharp conical spines directed forwards.

*Front* divided into five equal dentiform lobes, orbit with the upper margin slightly notched, a large curved conical tooth behind it.

*Fore-legs* long and spiniferous.

*Hind-legs* slender and compressed, the fifth pair greatly dilated.

*Abdomen* (of male) triangular, five-jointed.

#### 1. LUPOCYCLUS ROTUNDATUS, *Adams & White*. (Tab. XII. Fig. 4.)

*Thorace* minutissime punctulato, tuberculis parvis aggregatis lineisque granulosi adperso, marginibus latero-anterioribus spinis quinque magnis, spinis quinque parvis interpositis; regionibus lateralibus pallidulo-luteo, corneo-fusco discoloratis; in medio thoracis tæniâ latâ rubrâ.

HAB. Balambangan.

*Carapace* subcircular, slightly narrowed behind, surface irregular, very finely punctulated, and covered with isolated clusters of minute tubercles and transverse granulated lines; the latero-anterior margin with five large, sharp, conical spines directed forwards, and an equal number of small intermediate spines.

*Front* semicircular, divided into five equal dentiform lobes; orbit with a slight notch at the upper margin, and bounded behind by a strong, curved, conical tooth, directed forwards.

*Fore-legs* with the third joint furnished with a row of five sharp, curved, conical spines on the anterior margin, numerous transverse ridges of small tubercles on the upper surface, and a longitudinal granulated line ending externally in a sharp spine; fourth joint with a strong spine on the upper edge; upper surface of fifth joint with a large spine at the base, and two ridges each ending anteriorly in a prominent spine; claws long, slender, grooved, and slightly curved.

*Hind-legs* slender, compressed, finely punctulated and granulated, the last pair with all the joints horizontally flattened, the last and penultimate joint greatly dilated and fringed with close-set stiff hairs.

*Abdomen* (of male) triangular, five-jointed.

HAB. Island of Balambangan, north end of Borneo.

In colour this pretty and curious genus is of a pale yellow, marbled with light pinkish brown on the lateral regions of the carapace, and a broad scarlet longitudinal stripe extending from the front to the hind margin, narrowed opposite the orbits and in the middle of the back. The fore-legs are marbled with scarlet and yellow, with a broad scarlet band in the middle of the fifth joint, and two broad bands of the same colour on each claw. The hind-legs are light pinkish yellow, with broad transverse scarlet bands.

### 3. CHARYBDIS, *De Haan*.

#### 1. CHARYBDIS DURA, *Adams & White*.

*Thorace* valde duro, lævi, marginibus lateralibus quinque-dentatis, primo et secundo dentibus ad basin denticulo minuto instructo.

*Fronte* sex dentibus obtusis, dente externo prominentiore quam in speciebus aliis.

*Chelis* carpo externe scabro, tuberculato, interne spinâ longâ crassâ in medio, manu margine superiore spinis sex in serie duplicatâ parallelâ dispositis, externe carinis tribus longitudinalibus.

*Pedibus* posterioribus externe spinâ magnâ prope extremitatem.

HAB. Mauritium.

*Carapace* very hard and smooth, lateral margin five-toothed, the first and second teeth with a minute tooth at the base.

*Front* with six large bluntish teeth, the external tooth rather more prominent than in the other species.

*Fore-legs* with the fourth joint rough and tubercular on the outside, with a very long thick spine on the middle of the inside, the fifth joint with six spines, in two parallel rows, on the upper edge, and three longitudinal keels on the outside.

*Hind-legs* with a large spine on the outside near the end.

HAB. Mauritius.

## VI. OCYPODIDÆ.

Species of *Ocypode* and *Gelasimus* are extremely numerous throughout the islands of the China Sea. Every sandy shore is perforated above high-water mark with the holes of the former, and the banks of the rivers, the mangrove swamps, damp forest margins, and muddy places near the sea, are peopled with the latter, which form oblique burrows frequently penetrating to a considerable depth. The *Ocypodes* appear to be chiefly crepuscular in their habits, remaining concealed in their holes during the heat of the day, but as evening approaches running side-ways in a curvilinear manner at the edge of the sea, where the waves break along the sandy shores. The *Gelasimi* remain concealed in their burrows during the high tide or in the dry hot part of the day, but delight to come out of their holes after a shower, or when the tide has receded and left their mud banks moist, but they never



venture very far from their habitations. The clicking noise produced by snapping the claws of their larger fore-leg together, when made by many hundreds at a time, may be heard at some considerable distance. On the least alarm they retreat precipitately to their burrows.

## 1. GELASIMUS, *Latreille*.

### 1. GELASIMUS CULTRIMANUS, *Adams & White*.

*Thorace* lævi; marginibus lateralibus rotundatis, sine carinâ acutâ ab angulo canthi externo.

*Fronte*, inter oculos, lobo parvo rotundato, dilatato; margine canthi inferiore distincte crenulato; chelâ majore digitis latis, finibus extrorsum curvatis; digito inferiore in medio profunde sinuato, lobo lato, prope extremitatem margine serrato-crenulato; digito superiore margine inferiore fere recto.

HAB. Insulas Philippinas.

*Carapace* with the upper surface smooth; the lateral edges rounded, without any sharp keel from the outer orbital angle.

*Front*, between the eyes, with a small dilated rounded lobe; edge of lower orbit very distinctly crenated; fifth joint of fore-legs with the claws wide, both slightly curved outwards at the ends; the lower claw with a very wide sinus in the middle, a wide serrato-crenated lobe on the edge near the end; upper claw with the lower edge very nearly straight.

HAB. Philippine Islands.

### 2. GELASIMUS CRASSIPES, *Adams & White*.

*Thorace* valde arcuato, postice subito coarctato.

*Fronte* lobo sine pedunculo angusto.

Pedibus posterioribus crassioribus et robustioribus quam in speciebus aliis.

HAB. Insulas Philippinas.

*Carapace* very much arched, suddenly narrowed behind.

*Front* with a lobe, without narrow stalk.

Four hind pairs of legs thicker and stronger than in the other species.

HAB. Philippine Islands.

### 3. GELASIMUS BELLATOR, *Adams & White*.

*Thorace* antice (prope insertionem canthorum pedunculorum) sinuato.

*Fronte* in lobum rotundatum subdilatatâ; chelis manu digitis perlongis; digito superiore lateribus subparallelis, margine prope ad basin tuberculis duobus vel tribus; digito inferiore infra marginato, acie ad basin sinus superficiali tuberculari, dente robusto lato ad extremitatem.

HAB. Insulas Philippinas.

*Carapace*, in front, just behind the insertion of eye-peduncles, sinuated.

*Front* slightly dilated into a rounded lobe; fifth joint of the larger fore-leg, with the claws very long; the upper, or movable claw, with the sides nearly parallel, two or three larger

tubercles on the edge near the base ; fixed or lower claw margined on the under side ; the cutting edge with a very wide shallow tubercular sinus at the base ; at the end of the sinus, beyond the middle, a strong wide tooth, gradually sloping down to the end, which curves upwards.

HAB Philippine Islands.

4. GELASIMUS PORCELLANUS, *Adams & White*.

*Oculorum pedunculis* perlongis.

*Thorace* parte frontali non coarctatâ ad basin ; parte posteriore longiore quam latera.

*Chelis* digito inferiore ad finem incrassato, marginibus internis digitorum amborum tuberculis magnis quatuor inter parvos crenulos.

HAB. Borneonem.

*Eye-pedicels* very long.

*Frontal* portion of carapace not narrowed at the base ; hind part of carapace much longer than the sides.

*Fore-legs* with the lower claws thickened at the end, the inner margins of both elaws with four larger tubercles amongst the small crenules.

HAB. Borneo.

5. GELASIMUS FORCIPATUS, *Adams & White*.

*Thorace* valde postice coarctato.

*Fronte*, inter oculos, lobo dilatato, lineâ acuto-marginatâ, ab angulo canthi externo porrectâ.

*Chelâ* majore digitis æqualibus, dente prope medium, et prope extremitatem, lobo truncato.

HAB. Borneonem.

*Carapace* much narrowed behind.

*Front* with a dilated lobe between the eyes ; from the outer orbital angle a sharp-edged line continued beyond the middle of carapace.

*Fore-legs* with the larger elaw nearly equal in size, with a tooth near the middle, and a truncated lobe towards the end ; a rather broad impressed line along the middle of each claw ; upper edge of palmar portion with a slight ridge ; outer side of palm covered with very slight tubercles.

HAB. Borneo.

## VII. GONOPLACIDÆ.

The *Macrophthalmi* inhabit muddy flats along the sea-shores, and, when disturbed, bury themselves quickly in the yielding soil, leaving the ends, however, of their long telescope-eyes above the surface. When taken, they are quite defenceless, not using their fore-legs as organs of aggression, or erecting and snapping them as do the *Gelasimi*. They are numerous distributed throughout the Philippine Archipelago and the islands in the China Sea.

1. MACROPHTHALMUS, *Latreille*.1. MACROPHTHALMUS JAPONICUS, *De Haan*.

*Thorace* lato-quadrato, ad latera obtuse dentato; manibus (marium) latere exteriori levibus et inermibus, interiore glaberrimis, carinâ superiore granulatis; digitis (in maribus) deorsum inflexis.

Japonice *Suna gani*, i. e., Cancer arenarius, quod se in arenâ abscondere solet.

*Ocypode* (*Macrophthalmus*) *Japonicus*, De Haan, F. I. p. 54. t. 15. f. 2. (mas) t. 7. f. 1. (femina.)

HAB. Insulas Mëia-co-shimahs et Japoniam.

*Carapace* widely-quadrate, sides obtusely toothed; the fifth joint of fore-legs, in the male, smooth and unarmed on the outer side, very smooth on the inner side, granulated on the upper keel; claws in the male bent downwards.

In Japanese *Suna gani*, i. e., Sand Crab, because it is in the habit of burying itself in the sand.

HAB. Mëia-co-shimah Islands; Adams. Japan; De Haan.

2. MACROPHTHALMUS DEFINITUS, *White*.

*Thorace* anguste-quadrato, lateribus dentibus tribus, angulo canthi incluso, dente secundo latiore, dente tertio parvo.

*Chelis* articulis perlongis vix supra marginatis, digito superiore dente parvo prope basin; digito inferiore sinu valde profundo, manu infra tuberculatâ, interne pilosâ.

HAB. Insulas Philippinas.

*Carapace* narrowly-quadrate; sides with three teeth, including the orbital angle; the second widest, turned up considerably, the third very small.

*Fore-legs* with the joints very long, scarcely margined above; movable or upper claw with a very slight tooth near the base; fixed or under claw with a very deep sinus; fifth joint tuberculated on the under side, hairy on the inside.

HAB. Philippine Islands.

3. MACROPHTHALMUS SERRATUS, *White*.

*Thorace* anguste-quadrato, lateribus antice dentibus tribus robustis, postice carinâ subcrenulatâ.

*Chelis*, manu ab basin interne dilatatâ, longitudinaliter excavatâ; digitis pilis longis densis obsitis; digito superiore, in medio, dente truncato.

Pedibus posterioribus, parte superiore, spinâ prope extremitatem.

HAB. Insulas Philippinas.

*Carapace* narrowly-quadrate, with three strong teeth on the sides in front, succeeded by a slight somewhat crenated keel which margins the rest of the carapace.

*Fore-legs* with the fifth joint dilated on the inside from the base, and longitudinally hollowed out; inside of both claws densely clothed with long hairs; upper or movable claw with a large truncated tooth in the middle.

Hind-legs with a spine on the upper side near the end.

HAB. Philippine Islands.



2. CHASMAGNATHUS, *De Haan*.1. CHASMAGNATHUS CONVEXUS, *De Haan*.

*Thorace* gibbo, granulato, brevi-setoso, dorso subtetragono, lateribus arcuato.

*Fronte* arcuatâ, medio sinuatâ.

HAB. Maria orientalia.

*Octypode* (*Chasmagnathus*) *convexa*, De Haan, F. l. p. 56. t. 7. f. 5.

*Carapace* gibbose, granulated, shortly-setose, subtetragonal on the back, arched at the sides.

*Front* arcuated, sinuated in the middle.

HAB. Eastern Seas.

## VIII. GRAPSIDÆ.

The *Sesarmæ* are found in various localities, sometimes in fresh-water rivulets, among weeds; sometimes under damp logs and stones at a considerable distance from any water, and most frequently among the roots of mangroves in salt-water swamps. They are active and extremely wary in their habits, and, like the *Grapsi*, very predacious. The *Grapsus plicatus* is a very common species in Borneo, and appears to vary greatly in colour according to the localities in which it is found. The *Grapsi* are fond of rocks, over which they run with surprising agility; they frequently remain stationary for hours, basking in the sun, when the tide has just left the high rocks.

1. UTICA, *White*.

*Pedipalpi externi* articulo tertio externe recto non dilatato.

*Thorace* 8-angulato, depresso, post-medium carinâ transversâ valde distinctâ; margine latero-anteriore dentibus tribus; parte latero-posteriore obliquâ, parte posteriore rectâ.

*Chelis* parvis.

Pedibus posterioribus perlongis, tarso vix dilatato subelongato, pilis fimbriato.

Outer *jaw-feet* with the third joint, on the outside, straight, not dilated.

*Carapace* somewhat eight-angled, tabular, a very strong transverse ridge behind the middle; latero-anterior margin with three teeth; latero-posterior part oblique, posteriorly very straight.

*Fore-legs* small.

Hind-legs very long, tarsus not particularly dilated, somewhat elongated, fringed with hairs as is the preceding joint.

This genus is nearly allied to *Trichopus*, De Haan, which is synonymous with *Varuna*, M. Edwards.

1. UTICA GRACILIPES, *White*. (Pl. XIII. Fig. 6.)

*Fronte* latâ, anteriore margine valde recto, post-frontem ad medium thoracem pertinente, eminentiâ magnâ latâ subtriangulari, a transversâ carinâ separatâ per altam lunatam depressionem, lineâ subimpressâ a finibus ad latus carinæ porrectâ. *Pedibus* gracillimis, pilis fimbriatis.

HAB. Insulas Philippinas.

*Utica gracilipes*, White, Pro. Zool. Soc., May, 1847.

*Front* wide, fore-edge very straight; behind it and extending to the middle of the carapace, a considerable, wide, somewhat three-sided elevation, separated from the transverse ridge by a deep lunated depression, from the ends of which a slight impressed line proceeds to the side of the ridge, where it deepens.

*Hind-legs* very slender, and fringed with hair.

HAB. Philippine Islands.

Mr. Cuming found this species in a fresh-water rivulet among the mountains of the Island of Negros. It was also obtained during the Expedition of the Samarang in the Island of Mindanao, in the deep still muddy fresh-water rivulets near Samboangan, hiding under weeds and rotten wood. When caught, it feigns death, contracting its limbs and rendering them perfectly rigid. Its colour, when alive, is dark-red brown, on the under-surface dark chocolate-brown, lighter on the legs and abdomen, which latter in the female has a yellowish line down the middle.

## IX. LEUCOSIDÆ.

Besides several species of *Leucosia* new to science, a few *Philyræ* were obtained in the Sooloo Sea, and on the coast of Borneo from a rocky stony bottom; among them was the *P. scabriuscula* of Leach, which, when alive, is of a chocolate colour, with red-brown legs; the *Philyra latifrons* (A. & W.), which is of a deep red brown, with orange fore-legs; and another with a dead-white polished carapace, marked with dark olive brown, and the fore-legs banded with the same. The *Philyræ* have much the same habits as the *Leucosiæ*, being slow-moving, torpid Crustaceans, never using their fore-legs for defence, and living in deep water on a clean rocky or stony floor. A pretty species of *Myra* was dredged in the Sooloo Sea of a delicate flesh colour, with two blood-red spots on the carapace. The *Myra fugax*, which is punctulated and dark liver-coloured on the carapace, and a new species with white carapace and pinkish legs, were also procured; they are found usually in about eight or ten fathoms on a muddy bottom; one species is common in the mud of Manila bay. The *Arcaniæ* are usually of a dead-white colour, variously marked with red, with the legs spotted or banded; they prefer deep water and a clear gravelly bottom; several were dredged on the coast of Borneo in twenty-four fathoms. The *Ixæ* inhabit very deep water, and are inert and feeble; when taken they contract their legs and remain perfectly immovable. The *Iphides* are usually found concealed in madrepores and sponges, and live in a coral bottom in from fifteen to twenty fathoms; they are numerous on the coast of China.

1. LEUCOSIA, *Fabricius*.1. LEUCOSIA HÆMATOSTICTA, *Adams & White*. (Tab. XII. Fig. 2.)

*Thorace* trapezoidali supra valde convexo, post angulum latero-anteriorem inscissurâ profundâ, maculis multis sanguineis rotundatis obsito.

HAB. Maria Orientalia.

*Carapace* trapezoidal, very convex, of a light yellow, covered with numerous small round blood-red spots, fewer posteriorly, and in the middle line a deep notch behind the latero-anterior angle.

*Front* obtuse.

*Fore-legs* with round, scattered, blood-red spots, and a large quadrate mark of the same colour on the outer surface of each claw.

*Hind-legs* with a blood-red band on the upper half of each joint.

HAB. Eastern Seas.

2. OREOPHORUS, *Ruppell*.1. OREOPHORUS RETICULATUS, *Adams & White*. (Tab. VI. Fig. 1.)

*Thorace* subtrigono, reticulato, fossis subdivisis duabus latero-anterioribus, postice fossâ profundâ, in medio tuberculo clypeoformi, regionibus lateralibus valde elevatis.

*Fronte* rotundatâ antice subemarginatâ supra exsculptâ.

*Chelis* reticulatis.

HAB. Maria Orientalia.

*Carapace* subtrigonal, covered with a net-work of beaded lines, the intermediate areas finely granulated; a long semilunar, irregularly-shaped cavity extending along the latero-anterior margin on each side, separated by a strong post-frontal septum, each lateral cavity divided in two portions by two over-arching processes, which unite above, leaving a round foramen of communication; the posterior sublongitudinal portion partially divided by a conical projecting process; a small hole in the floor of the hind portion of the latero-anterior fossa; a cavity at the hind part of carapace nearly divided in two by a granulated tongue-shaped tubercle, and bounded posteriorly by two-obtuse tubercles of the hind margin; a solid shield-shaped reticulated process arising out of the hind part of the cavity; a beaded line around the margins of both fossæ; lateral regions convex, elevated into large obtuse prominences; lateral edges coarsely tuberculated.

*Front* thick and rounded, slightly emarginate, rather deeply excavated on the upper surface.

*Fore-legs* covered with coarse reticulations, formed of granulated lines. Upper claw spatulate, slightly curved downwards, flattened above, narrow beneath, a row of pits on the outer and inner margins, under edge tuberculiferous; upper surface with several rows of beaded lines. Under claw horizontally inclined, slightly curved upwards, elongately conical;



upper surface sharp and granular; under surface thin and tuberculated; inner surface concave, with two finely granulated parallel lines; outer surface convex, with two rows of holes, and two series of tuberculated lines.

*Abdomen* (of female) convex, wide, divided into about six pits by strong reticulations formed of granuliferous lines.

HAB. Straits of Sunda.

### 3. IXA, *Leach*.

#### 1. IXA MEGASPIS, *Adams & White*. (Tab. XII. Fig. 1.)

*Thorace* subgranuloso, canaliculis dorsalibus angustis valde profundis, postice lineâ impressâ profundâ transversâ; lateribus valde productis granulosis retrorsum inclinatis, finibus obtusis, dente terminali parvo curto.

HAB. Borneonem. Insulas Philippinas.

*Carapace* subgranular, the channelled grooves which separate the middle from the lateral regions very deep and narrow, a deep transverse posterior groove, the lateral prolongations granular, inclined backwards, long and slender, the ends obtuse, and slightly curved forwards, the stiliform tooth at their extremities very short and small.

HAB. Borneo (Tampasook); Philippines (Bohol).

The species, when alive, has the carapace of a light red colour, with dark crimson in the middle, the lateral prolongations of the carapace being purple, with orange tips: the legs are bright red. It differs from the *Ixa cylindrica* in the lateral prolongations being inclined backwards, more slender and longer, the ends more obtuse, and curving forwards, the terminal spine is much shorter and smaller, the surface of the carapace is less granular, the middle region is not so deeply notched on each side, the dorsal grooves are narrower and deeper, and the hind groove is more transverse.

#### 4. HARROVIA, *Adams & White*.

*Thorace* subpentagono, dense tomentoso, lineis duabus elevatis, tuberculisque quatuor obtusis; marginibus latero anterioribus dentibus tribus obtusis.

*Fronte* valde rectâ in medio emarginatâ, angulo canthi externe prominente dentiformi.

*Chelis* granulosis, brachio supra spinis duabus interne spinâ duplicatâ, carpo tuberculo unico, manu cylindricâ sulcatâ, digito ad basin tuberculo parvo externe.

*Carapace* subpentagonal, densely tomentose, with two transverse raised lines on the upper surface, each ending externally in a prominent blunt tubercle, and two faintly-impressed lines posteriorly; latero-anterior margins with three obtuse teeth, the anterior small and rounded, the middle large and more prominent, and the posterior strong and conical.

*Front* very straight, emarginate in the middle, the inner angle of the orbits forming a strong tooth in the same line as the front.

*Fore-legs* granulose, twice the length of the carapace; third joint with two spines on the upper edge, and a double spine on the inner edge; fourth joint with a single tubercle above, and an elongated simple lobe externally; fifth joint subcylindrical, with two longitudinal grooves externally, and a single groove internally.

*Claws* short; upper claw curved, with a single small tubercle, externally, near the base, lower edge with numerous teeth; lower claw triangular, grooved externally, the upper edge sharp and dentate.

*Abdomen* (of female) seven-jointed, tomentose, the edges fringed with coarse short hairs.

1. HARROVIA ALBO-LINEATA, *Adams & White*. (Tab. XII. Fig. 5.)

*Thorace* rubro, lineis pallidis.

*Chelis* carmineis, infra rufescente.

HAB. Borneonem et Insulas Philippinas.

*Carapace* of a red colour, with light transverse markings.

*Fore-legs* crimson; under surface of body rufous.

HAB. Borneo. Philippine Islands.

5. IPHIS, *Leach*.

1. IPHIS NOVEM-SPINOSA, *Adams & White*. (Tab. XIII. Fig. 1.)

*Thorace* lævi granuloso, granulis antice aggregatis, postice sparsis, marginibus latero-anterioribus spinis duabus subobtusis prorsum et extrorsum porrectis; marginibus latero-posterioribus spinis duabus retrorsum et extrorsum directis, infra has spinis duabus brevis conicis retrorsum et extrorsum porrectis; margine posteriore, spinâ longâ rectâ in medio retrorsum directâ.

*Fronte* in lobos duos conicales divergentes divisâ.

HAB. Insulas Philippinas.

*Carapace* polished, granular, granules close together in front, more sparsely disposed towards the hinder part; latero-anterior borders with two short, stout, somewhat obtuse spines directed forwards and outwards; latero-posterior borders with two long spines directed backwards and a little outwards, with their ends curving upwards, and below these, nearer the middle line, two short conical spines proceeding backwards and outwards; posterior border with a long straight spine in the middle, projecting directly backwards.

*Front* ending in two conical diverging lobes.

HAB. Philippine Islands (Mindoro).

This species differs from *Iphis septem-spinosa* of Leach, in the general form of the carapace, which is less triangular, more oval, covered with granules, and wants the sharp ridge which extends along the middle of the carapace of *I. septem-spinosa*; in the lateral spines being short and curved; in the possession of two additional spines placed anteriorly to these latter; in the greater comparative size of the upper posterior pair of spines; in the

stouter condition of the prehensile and ambulatory feet ; and in the well-marked peculiarity of the front.

## 6. IPHICULUS, *Adams & White.*

*Thorax* sublatior quam longior, denso tomento spongioso obsitus ; marginibus latero-anterioribus spinis quatuor fimbriatis ; marginibus latero-posterioribus tuberculis duobus obtusis, parte coarctatâ lineis impressis duabus longitudinalibus, et sulco transverso, postice tuberculo subelevatiusculo.

*Frons* tuberculis duobus depressis, fissâ separatis.

*Chelæ*, manu gibbosâ, digitis perlongis, gracilibus, multis denticulis longis instructis.

*Abdomen* (maris) ad articulum basalem foveâ profundâ sublongitudinali.

*Carapace* rather wider than long, covered with a dense woolly tomentum, resembling fine sponge ; latero-anterior margins with four fringed spines, increasing in size from the front backwards, the fourth spine, forming the latero-anterior angle, being very strong and prominent ; latero-posterior margins with two obtuse tubercles, separated by a sinus ; the coarctate portion of carapace marked by two longitudinal and one transverse groove, and ending in a rounded slightly-elevated tubercle.

*Front* consisting of two very short depressed tubercles, separated by a notch, each tubercle rounded in front ; mouth extending beyond the front.

*Fore-legs* with the fifth joint gibbous ; the claws very long and slender, with numerous fine long sharp teeth.

*Abdomen* (of male) with its basial joint with a deep sublongitudinal fovea.

### 1. IPHICULUS SPONGIOSUS, *Adams & White.*

*Thorace* fusco, tomento denso spongioso oblecto ; lateribus, anteriore spinis quatuor fimbriatis, posteriore tuberculis duobus.

HAB. Insulas Philippinas.

*Carapace* brown, covered with a thick sponge-like woolly tomentum ; sides with four fringed spines anteriorly, and two tubercles posteriorly.

HAB. Philippine Islands.

This genus should properly follow *Ceratocarcinus*, with which it is closely allied, and should be placed in the same group as that Crustacean ; it appears, among the *Parthenopidæ*, to hold the same place as *Oreophorus* does among the *Leucosidæ*.

## 7. TLOS, *Adams & White.*

*Thorax* latior quam longior lævis ; regionibus lateralibus valde excavatis, marginibus lateralibus trilobatis, margine posteriore excavato, loliâ bicarinatâ ; multis tuberculis parvis ad basin circumdati.

*Frons* integra rotundata deorsum reflexa.

*Chelæ* branchio triangulare, carpo supra bicarinato, manu carinâ tuberculiferâ, digitis ad fines curvatis.

*Abdomen* (feminæ) articulis septem, ovale tuberculosum.



*Carapace* much wider than long, smooth, the lateral regions cup-shaped, with raised edges, with an anterior and posterior groove; lateral edges divided into three lobes, the front lobe straight and reflexed backwards, the middle simple and rounded, the posterior elevated and wedge-shaped; the middle region with a strong vertical ridge ending behind in an obtuse tubercle, and on each side with two perpendicular three-sided elevations, truncated at their apices, with a small tubercle at their fore-bases; posterior margin of carapace excavated, with a large projecting lobe flattened above, with two ridges behind, a rounded elevation in front, and numerous small tubercles near the base.

*Front* entire, rounded, reflected backwards, showing a central groove on the under surface.

*Fore-legs* with the third joint triangular, the edges tuberculiferous; the fourth joint with two tubercular ridges on the upper surface; fifth joint with a tubercular keel above; claws slightly curved at the ends.

*Abdomen* (of female) oval, tuberculated, seven-jointed, surrounded by an elevated ridge.

It is interesting to see the analogous armature of the carapace with that of *Xanthasia murigera* (White) amongst the *Pinnotheridæ*. The name *Tlos* is from the town of that name in Lycia, so well described by Sir Charles Fellowes in his Asia Minor. It is distinct enough from *Tylos*, another genus of *Crustacea*, so as not to be confounded with it in sound.

1. TLOS MURIGER, *Adams & White*. (Tab. XIII. Fig. 2.)

*Thorace* lævi, regionibus lateralibus valde excavatis; marginibus lateralibus trilobatis; margine posteriore excavato, lobo bicarinato multis parvis tuberculis ad basin.

HAB. Borneonem.

*Carapace* smooth; lateral regions deeply excavated; side-margins with three lobes, hind margin excavated, a two-ridged lobe with numerous small tubercles at the base.

HAB. Borneo.

## X. CORYSTIDÆ.

The genus *Trichocera* is not uncommon among the islands of the Philippine Archipelago, where it is found among the reefs concealed in the coral, or hiding under stones; it has all the habits of the *Xantho* group; the *Corystes* inhabits rather deep water, preferring the same localities as the *Leucosiæ*, which it likewise resembles in its habits; a species of *Gomezia* was dredged by Mr. Cuming in the Philippines, but the other genera of this family do not appear to be found among the islands of the Eastern Seas.

1. TRICHOCERA, *De Haan*.

1. TRICHOCERA GIBBOSULA, *De Haan*.

Parva, pilosa, thorace dilatato, brevi, setoso, tuberculato, tuberculis mediis planis quinque transversim dispositis; lateribus 10-dentatis; fronte 5-dentatâ.

HAB. Japonian.

*Corystes (Trichocera) gibbosula*, De Haan, Faun. Japon. t. 2. f. 4; t. 13. f. 3.

Small, hairy, the carapace dilated, short, setose, tuberculated, the five middle plane tubercles disposed transversely; sides ten-toothed; front five-toothed.

HAB. China Sea. Japan.

## 2. TRICHOCERA PORCELLANA, *Adams & White*.

*Thorace* depresso lævi, lineis multis denticulatis transversis obsito; lateribus spinis quinque robustis acutis curvatis.

*Fronte* valde supra sulcatâ, lobis duobus obtusis dente magno externe.

*Chelis* lævibus, lineis transversis denticulatis obsitis; digito superiore supra dentato; digito inferiore tuberculis quatuor supra, lineis duabus longitudinalibus infra.

*Pedibus* posterioribus lævibus, pilis longis fimbriatis.

HAB. Insulas Philippinas.

*Carapace* depressed, polished, covered with numerous transverse finely-denticulated lines, some interrupted and some continued into the lateral spines; sides with five sharp strong curved spines, the first and last simple, the others with small spines at their bases.

*Front* deeply grooved above, with two obtuse denticulated lobes, each with a large tooth externally.

*Fore-legs* polished, covered with short finely-denticulated transverse lines; claws long, with the spatulate extremities abruptly curved, upper claw dentated above, with small tubercles below, lower claw with four tubercles above, and two longitudinal denticulated lines externally.

*Hind-legs* dilated, smooth, fringed with long hairs.

HAB. Philippine Islands.

By Professor De Haan, the most able of modern Crustaceologists, this species would be referred to the division which contains *Xantho*, and we must confess that in its general appearance it has some resemblance to the Chilian genus *Paraxanthus* of Lucas, of which there are specimens in the British Museum; with the genus *Thia* of the family *Corystidæ* it has some considerable analogy, and may be said, in the group *Xantho*, to represent that family. Like the *Cancer (Xantho) integer* of M. De Haan, this species is of a bright yellow brown, with golden hairs (in the dried state), and both species are found in the Philippine Archipelago.

## XI. HIPPIDÆ.

The genera which compose this small but very natural group have, so far as I have observed, very nearly the same habits. They swim by sudden rapid jerks, like the *Galathea*, and appear to prefer the deep pools of the coral ledges; they are pre-eminently swimming Crustaceans, progressing but badly when taken from the water. An interesting addition to

our national collection in the form of *Notopus dorsipes*, De Haan, was obtained by us in the province of Unsang in Borneo, and a new genus (*Cosmonotus*) also rewarded our exertions while examining the same locality.

### 1. COSMONOTUS, *Adams & White*.

*Thorax* ovalis, antice acuminatus, lateribus valde compressis, in lineâ mediâ carinâ prominente, lateribus integris, angulo latero-anteriore spinâ brevi acutâ.

*Frons* profunde incisa, ad latera spina parva acuta.

*Chelæ* trigonales, interne planæ, externe convexæ.

*Abdomen* (maris) articulis septem, articulo ultimo trigonali.

*Carapace* oval, very much compressed laterally, especially in front, with a distinct prominent keel extending down the middle line, very strongly marked in front, but fainter posteriorly.

*Front* with a very small spine on each side of a deep angular notch, in which are placed the eyes.

*Fore-legs* strong, triangular, the upper claw arched, the lower claw small and dentated on the edge.

*Abdomen* (in the male) seven-jointed.

### 1. COSMONOTUS GRAYII, *Adams & White*. (Tab. XIII. Fig. 3.)

*Thorace* punctis multis depressis obsito.

*Fronte* valde incisâ externe spinâ parvâ acutâ.

*Chelis* trigonalibus brachio infra plano, externe convexo lineis multis transversis interruptis, supra carinato pilis fimbriato, interne concavo, carpo incurvato subcompresso, externe convexo, interne spinâ obtusâ; manu compressâ asperâ, margine superiore arcuato; digito inferiore angusto, elongato dente robusto prope extremitatem, digito inferiore brevissimo incurvato; pedibus posterioribus gracilibus brevibus.

HAB. Borneonem.

*Carapace* about an inch in length and half an inch wide, covered with numerous minute depressed punctures.

*Fore-legs* trigonal, the third joint plane on the under surface, the exterior convex with transverse, interrupted, engraved or impressed lines, the upper angle covered with long thick hairs, the inner surface concave; the fourth joint incurved, sub-compressed, convex externally, less convex internally, ending above and in front in a blunt spine; fifth joint compressed, elevated, with the upper edge arched, but not so sharp as in *Notopus*; the sides convex and covered with asperities or minutely denticulated ridges, interrupted and transverse; upper claw narrow, compressed, elongated, with a sharp apex, and a strong tooth near the distal extremity.

*Feet* short and weak as in *Notopus*; the first tibia bicarinated; the tarsus subquadrate, anteriorly bicarinate, with a scalpel-shaped claw; the second tibia one-keeled, with the tarsus



oblong, and a sharp elongated trigonal claw; the third tibia subtriangular, the tarsus short, flattened, trigonal, with a falcate claw; the fifth tibia triangular, very short, flattened; tarsus transversely ovate, with a small narrow claw.

*Abdomen* (of male) seven-jointed, the joints from the first to the sixth nearly of the same width as in *Notopus*, the last joint trigonal.

HAB. Borneo (Unsang).

*Cosmonotus* differs from *Notopus*, De Haan, in wanting the post-frontal, elevated denticulated ridge; in the dorsal keel ending abruptly in front, instead of terminating in a central frontal spine; in the front being notched, with a single spine on each side; in the carapace being much compressed, more especially in front, and in the produced and angular form, while in *Notopus* it is almost straight across the front; and in the sides being entire, with a short sharp spine at the antero-lateral angle. The species is named in compliment to J. E. Gray, Esq., F.R.S., Keeper of the Zoological department in the British Museum.

## XII. PENÆIDÆ.

A new species of *Sicyonia*, Edwards, of a scarlet colour, finely variegated with orange and yellow, with a greyish pubescence on the dorsal surface near the crest, was obtained in the Sooloo Sea together with a few *Zoææ*. The *Stenopus*, *Sicyonia*, and *Penæus*, usually swim in a slow and deliberate manner forwards, and occasionally with a sudden jerk propel themselves backwards. They keep at a considerable distance from the shore and seem to love deep still water, never appearing when the surface of the sea is ruffled.

### 1. STENOPUS, *Latreille*.

#### 1. STENOPUS HISPIDUS, *Latreille*. (Tab. XII. Fig. 6.)

*Thorace* spinis multis parvis pilisque sparsis obsito.

*Fronte* acuminatâ gracili sursum directâ, non ultra articulum basali antennarum superiorum pertinente; antennis perlongis filiformibus.

*Chelis* brevioribus quam paria pedum secuuda, longe ultra appendicem lamellarem antennarum inferiorum porrectis. Pari tertio pedum longiore quam totum corpus multis seriebus longitudinalibus dentium acutarum, tarsis duorum parium ultimarum pedum bifidis.

*Abdomine* laminâ mediâ pinnæ caudalis in centro sulcato, supra seriebus duabus spinarum.

HAB. Insulas Philippinas.

*Stenopus hispidus*, Latr. R. A. vol. iv. p. 93. Cuv. R. N. (Croch), t. 50. f. 2. Edw. Crust. vol. ii. p. 407. t. 25. f. 1. *Palemon hispidus*, Oliv. Enc. vol. viii. p. 666. Seba, vol. iii. t. 21. f. 617.

*Carapace* covered with numerous small spines and scattered hairs.

*Front* pointed, slender, elevated, not extending beyond the basal joint of the upper antennæ; antennæ very long and filiform.

*Fore-legs* not so long as the second pair, but extending considerably beyond the lamellar appendage of the lower antennæ. Third pair of legs longer than the whole body, with many longitudinal rows of pointed teeth; tarsi of the two last pairs of legs bifid.

*Abdomen* with the middle lamina of the caudal fin grooved in the centre, and furnished above with two rows of spines.

HAB. Coast of Borneo, and Philippine Islands.

Our figure is coloured from a living specimen taken by me in the China Sea. *A. A.*

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[*Additional Species.*]

### CRYPTOSOMA, *Brullé.*

CRYPTOSOMA ORIENTIS, *Adams & White.* (Tab. XIII. Fig. 4.)

*Thorace* rotundato; marginibus latero-posterioribus rectiusculis. Thorace post frontem et oculos sine sulcis.

*Fronte* tribus lobis subacutis.

*Pedibus* gracilibus; articulo prætersali tenui, non incrassato.

HAB. Maria Orientalia.

*Carapace* subcircular, as broad as long, narrowed behind, covered with numerous small red tubercles, and five rows of larger tubercles; latero-anterior margins distinctly dentate; latero-anterior angle with a rather long and sharp spine.

*Front* with three subacute lobes; upper margin of orbit deeply notched in the middle.

*Fore-legs* with the third joint armed with two long spines on the outer side near the end, the fourth joint tubercular, the fifth joint compressed, with an elevated toothed crest above, and covered externally with tubercular spines.

*Hind-legs* smooth, slightly compressed, slender, with the pretarsal joints not thickened or dilated.

*Abdomen* (in the male) four-jointed.

HAB. Eastern Seas.

This species comes very near to *Cryptosoma cristatum*, figured by Brullé in Webb and Berthelot's Hist. des Iles Canaries (Tab. Crust. fig. 2). The *Mursia cristata*, Leach; *Cycloes granulosa*, De Haan, Faun. Jap. t. 19. f. 3; *Thealia acanthophora*, Lucas, Ann. Soc. Ent. Fr. 1839, p. 579. t. 21. f. 1 (*Mursia armata*, De Haan, Faun. Jap. p. 73. t. 19. f. 2); and this species, belong to a group of *Calappidæ* which seems very widely distributed.

XENOPHTHALMUS *White.*XENOPHTHALMUS PINNOTHEROIDES, *White.* (Tab. XII. Fig. 3.)*Thorace* punctulato, sulcis duobus longitudinalibus ab oculis porrectis, lateribus antice ciliatis.*Pedibus* articulis ciliatis.

HAB. Insulas Philippinas.

*Xenopthalmus pinnotheroides*, White, Annals and Mag. Nat. Hist.

*Carapace* with the sides, in front, having a sharp ciliated edge; carapace punctured; two slight waved longitudinal grooves, one extending from each eye over the back of the carapace; most of the joints of the legs ciliated.

HAB. Philippine Islands.

We figure this curious genus on account of our being able to give a coloured representation from a drawing made from life in the Eastern Seas. *A. A.*

RHABDOSOMA, *Adams & White.**Oxycephalus*, M. Edwards.

We regret that the state of the only specimen in the British Museum is such that we cannot give the generic character with that detail which we should wish. It is founded on the third species of Professor Milne Edwards, indeed Mr. White has the authority of that eminent Crustaceologist that it is his very species: it is so different from the *Oxycephalus piscator*, M. Edwards (Crust. III. p. 100. t. 30. f. 10), that we have traced the figure of *O. piscator*, and added it below that of the *O. armatus*, to show the difference. Some day it may be proved to be a sexual character, when of course our name will sink, but *as yet* we know of no such discrepancies in the sexes of these Crustacea.

The head is as long as the rest of the body, and ends in a very long beak; from the state of our specimen we cannot describe this, but indicate it on the plate from a drawing made at the time of capture. The immense length of the body and the beak would sufficiently mark this generic form. The first two pairs of legs are shown in the figure, which must serve till we can procure further specimens, when we hope to give ample details of this very singular crustaceans and to analyse its characters at length. It forms a singularly interesting link between the *Amphipoda* and *Læmodipoda*, uniting, as it were, the two; we should like to have this form examined particularly by Prof. M. Edwards or Dr. Kroyer.

RHABDOSOMA ARMATUM, *Adams & White.* (Tab. XIII. Fig. 7.)*Oxycephalus armatus*, M. Edw. Crust. III. p. 101. pl. 30. f. 10, copied. (Tab. XIII. Fig. 8.)

The specimen described by Professor Milne Edwards was found by MM. Quoy and Gaimard in the ocean between Amboina and Van Dieman's Land, and is now in the Paris Museum. Ours was taken during a calm, floating on the surface of the South Atlantic Ocean.

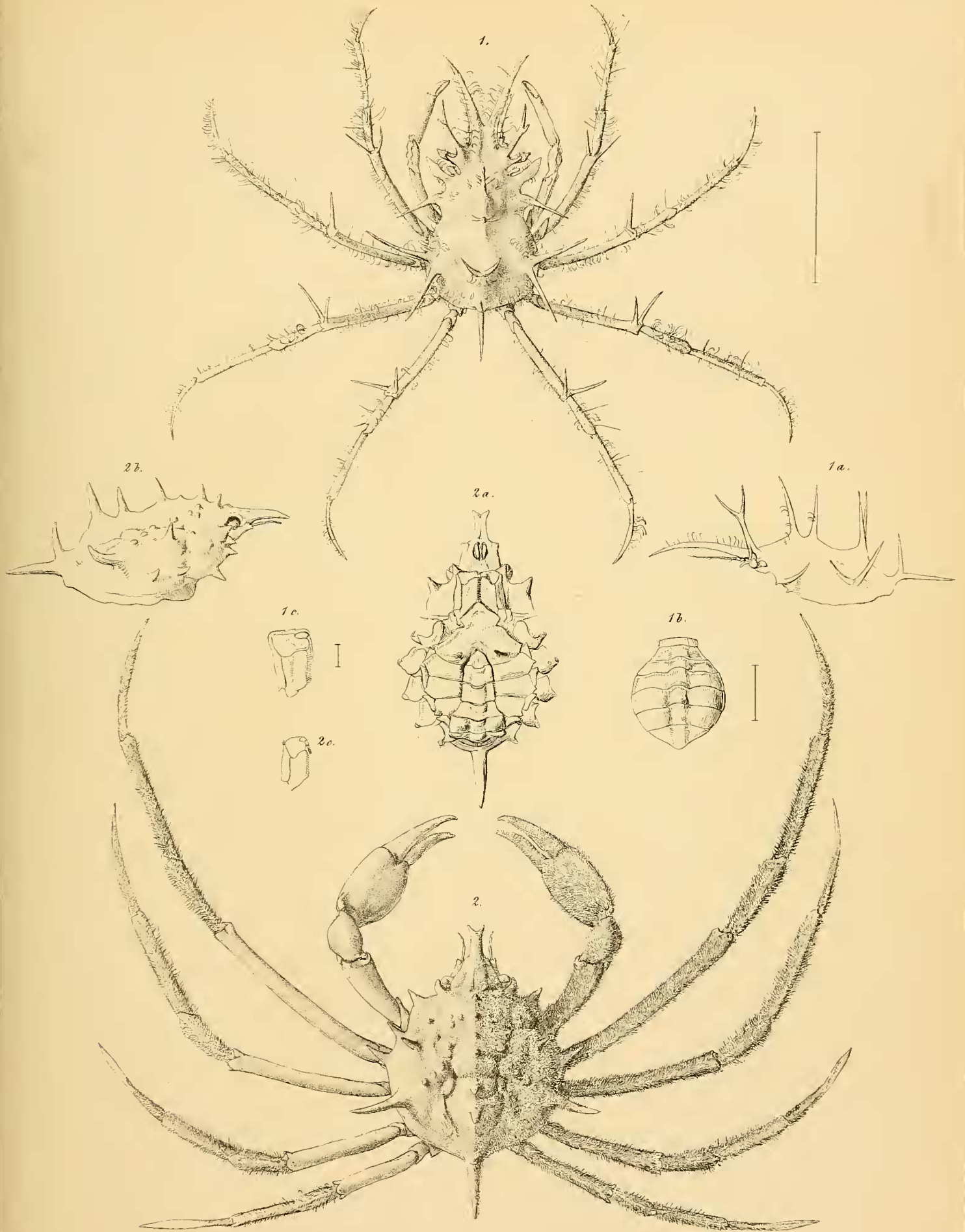
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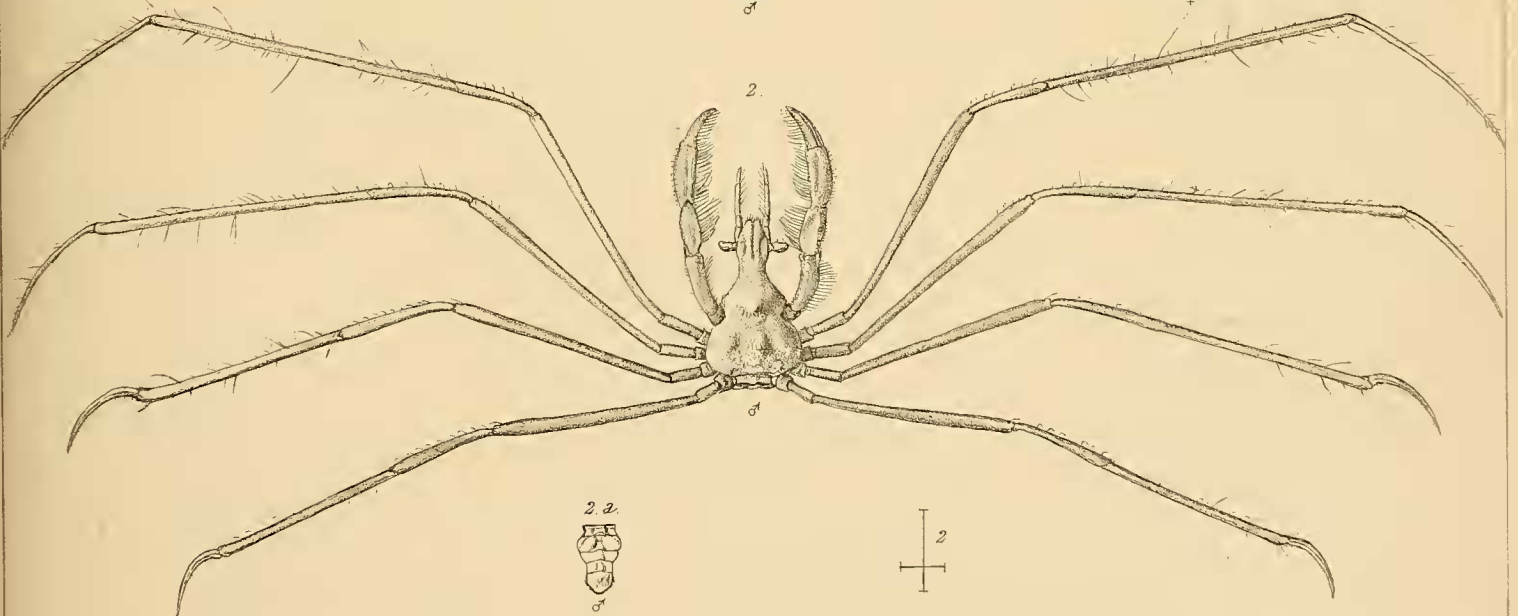
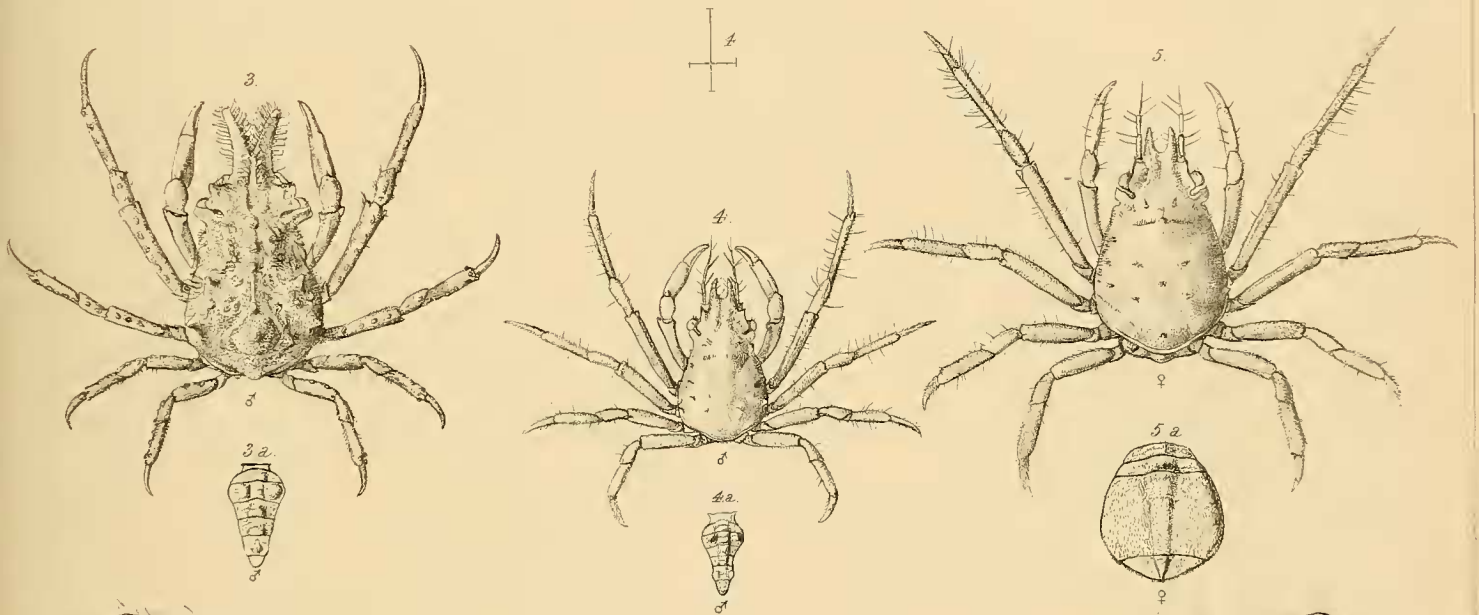
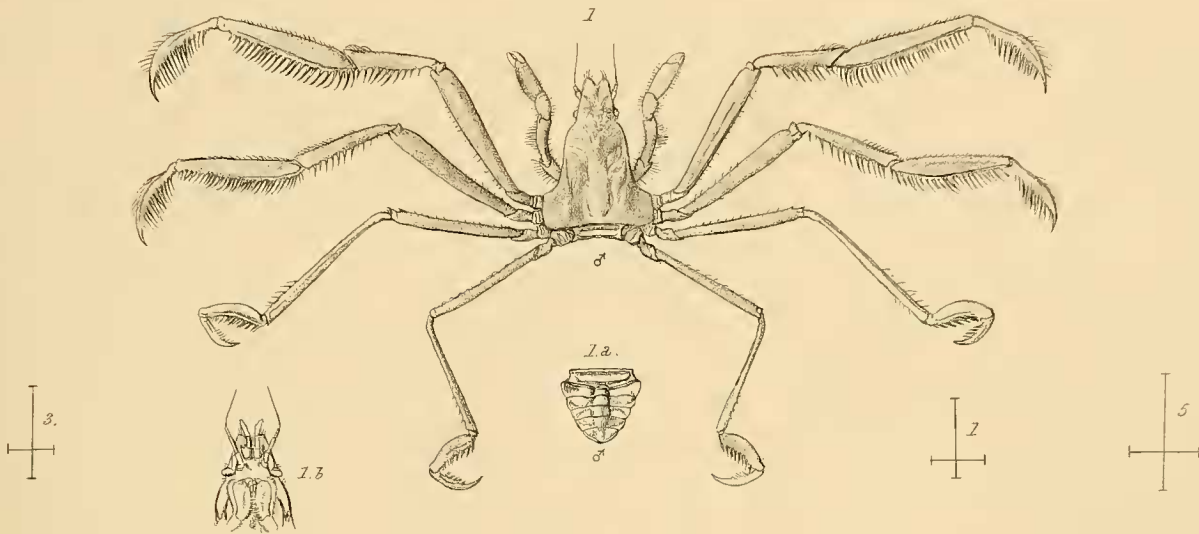
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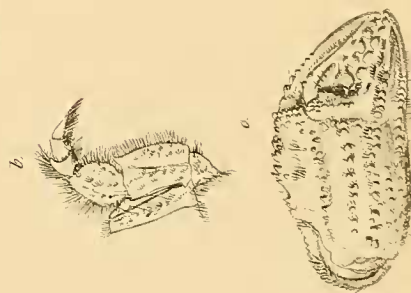
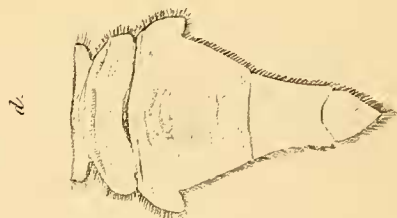
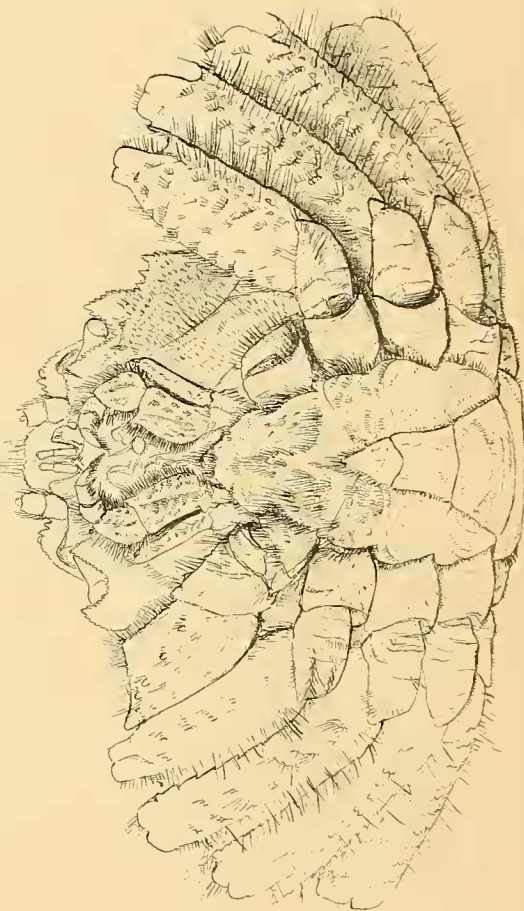
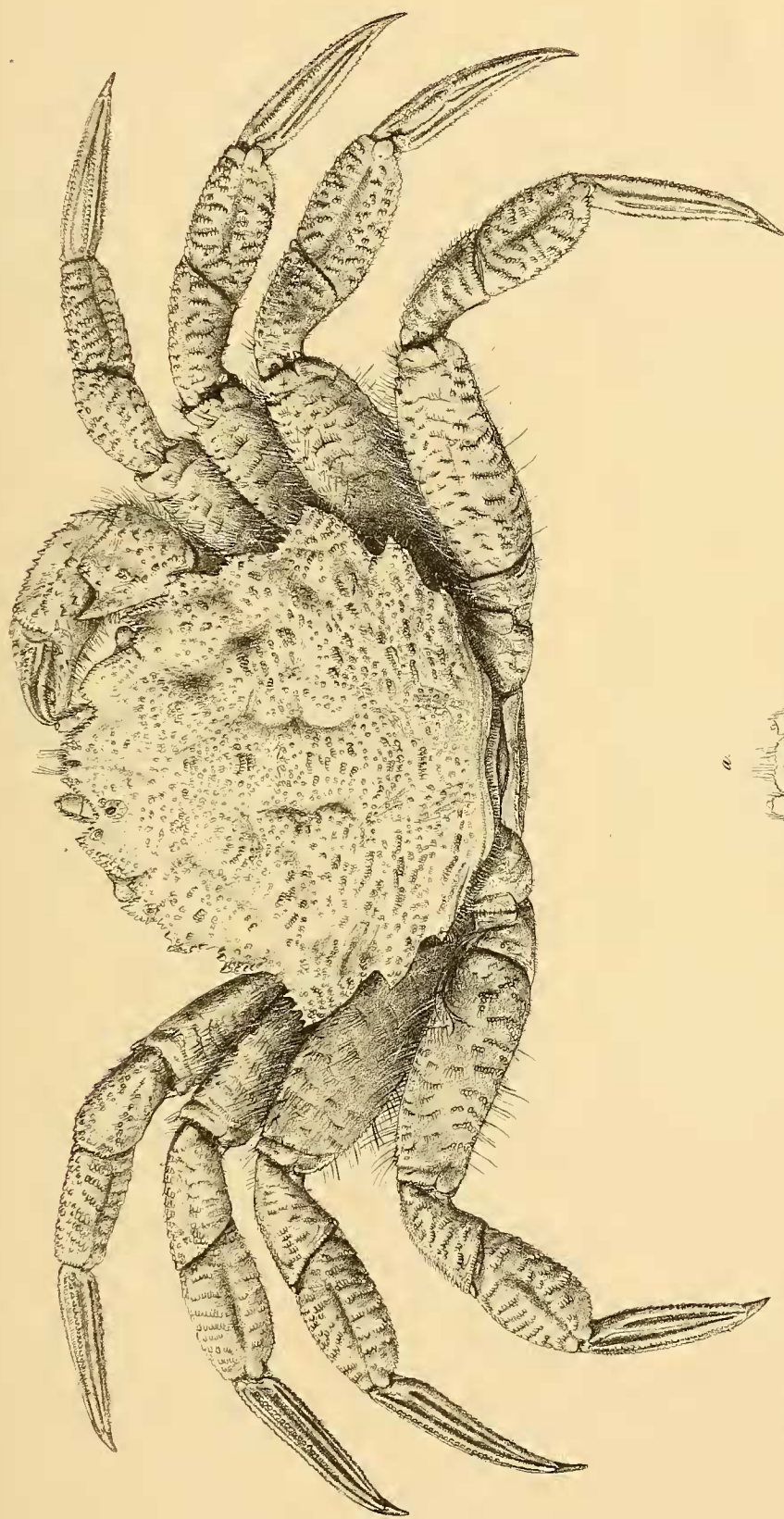


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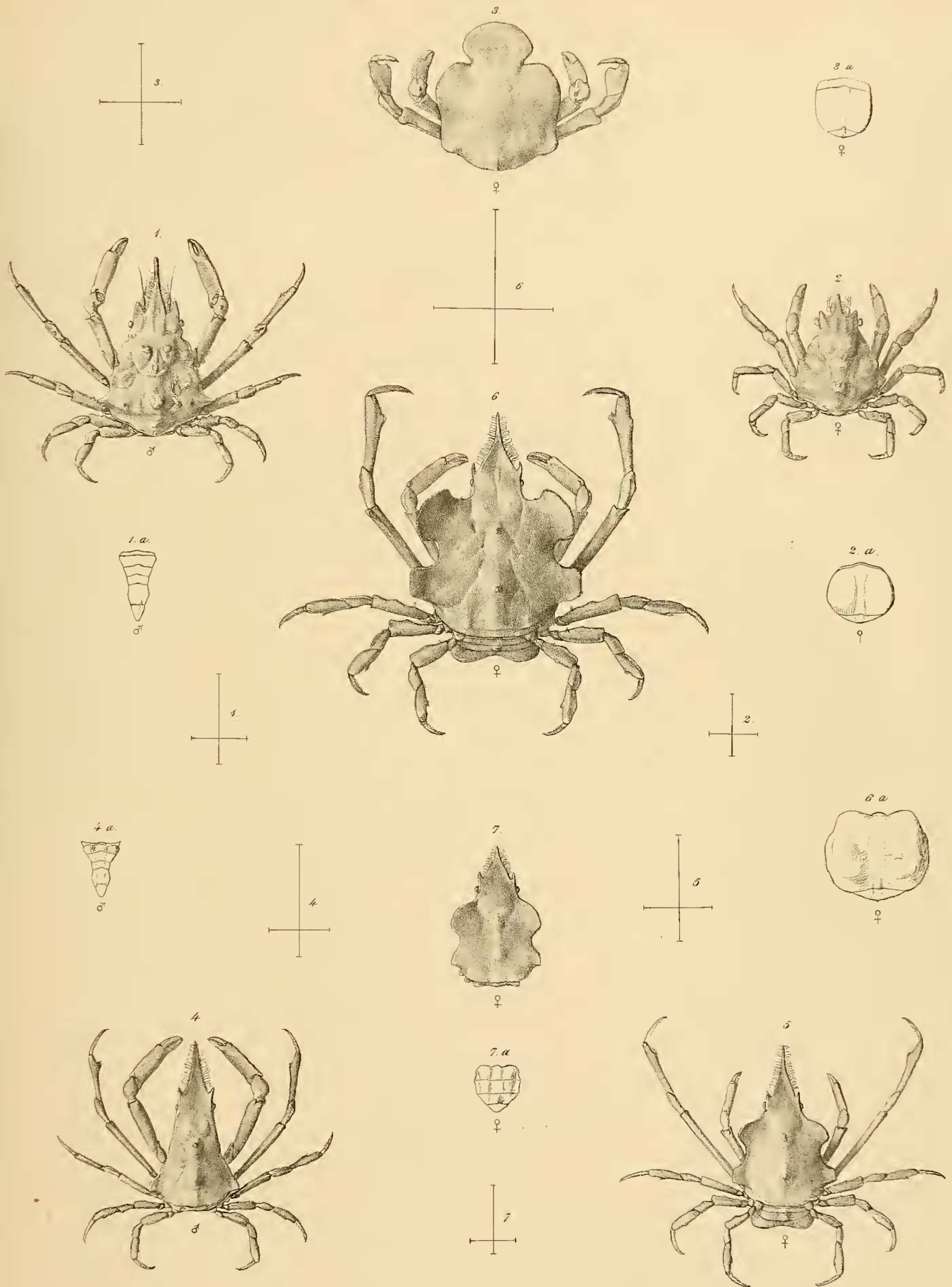
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4 &amp; 5. PISA PLANASIA. Adams &amp; White.



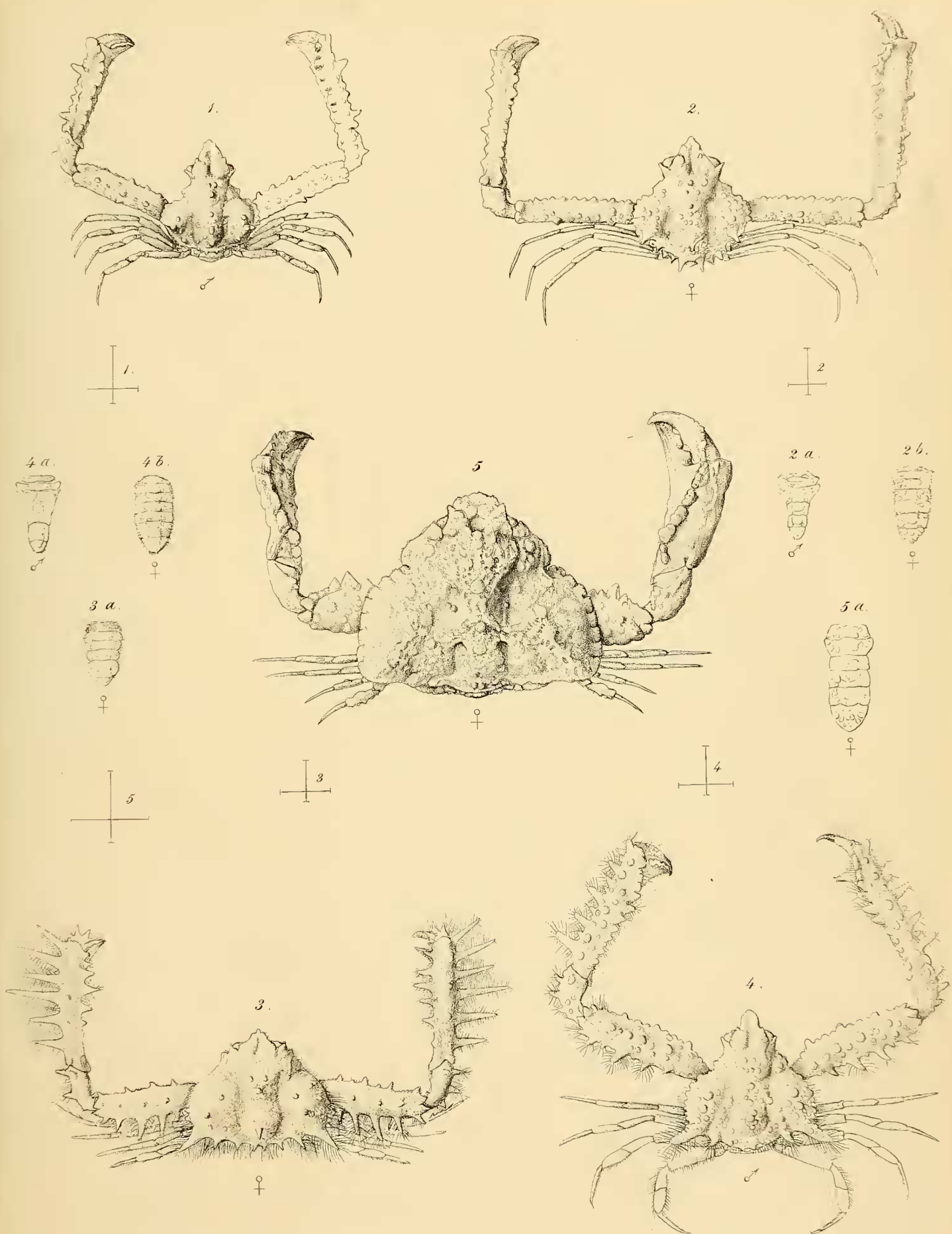


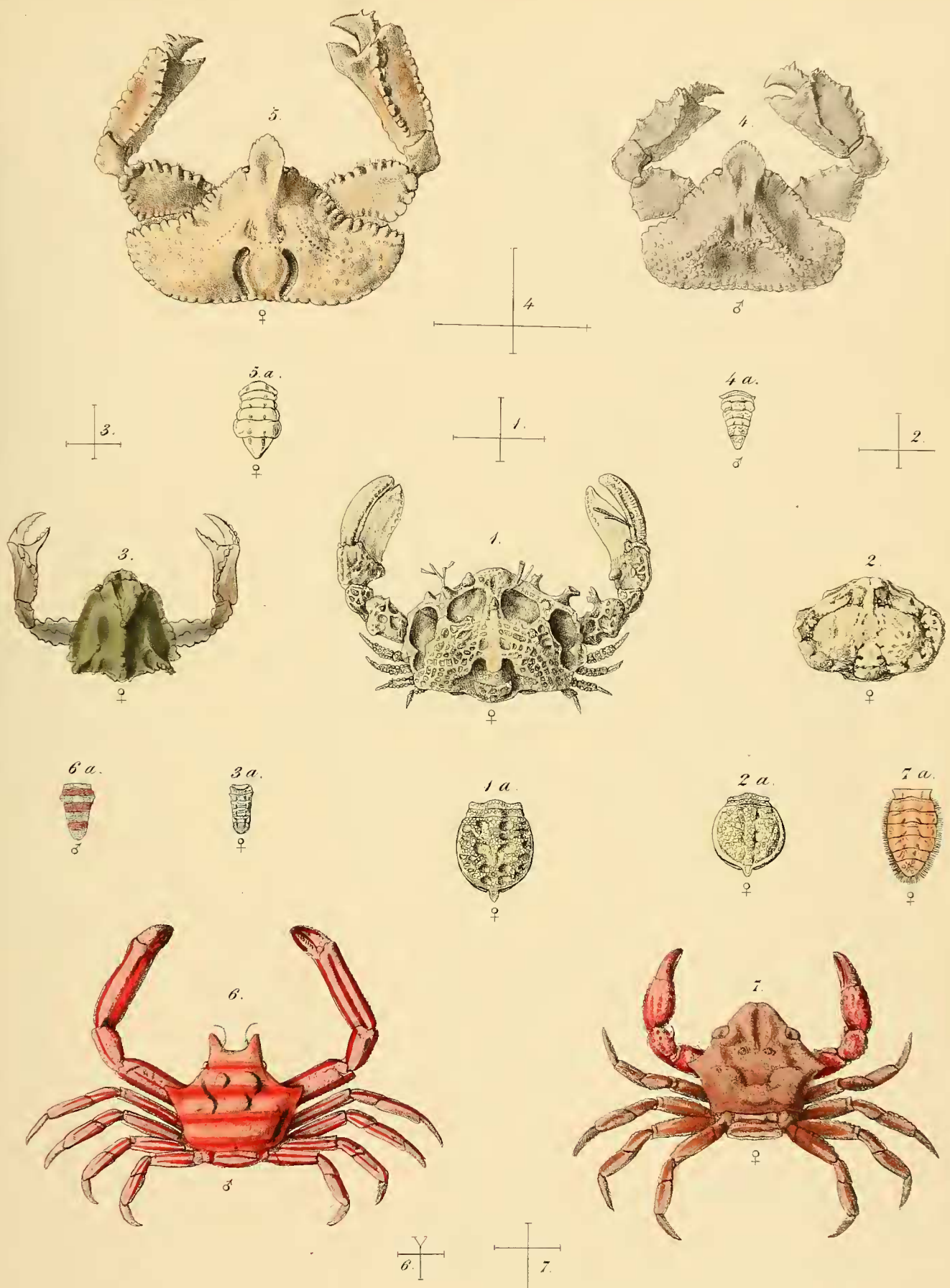


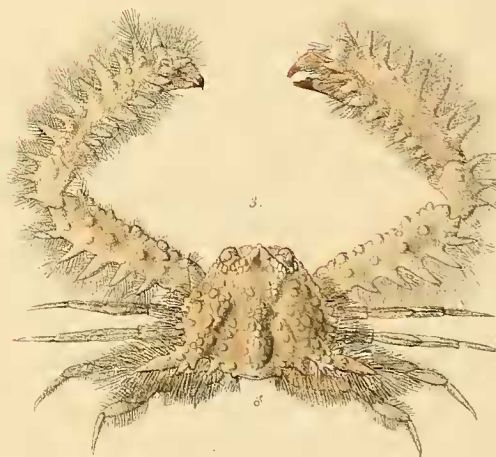
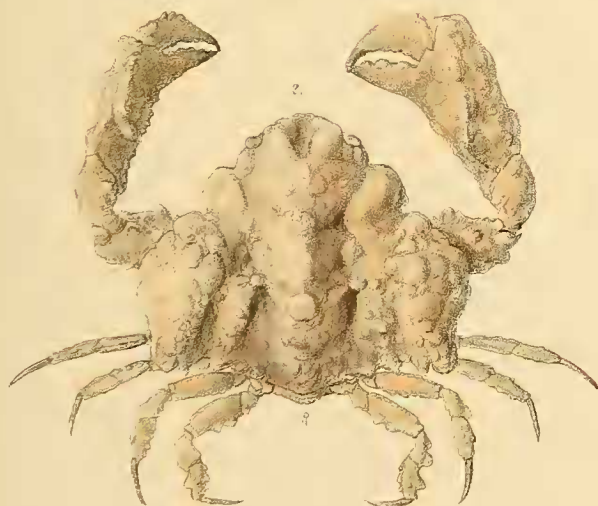
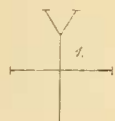
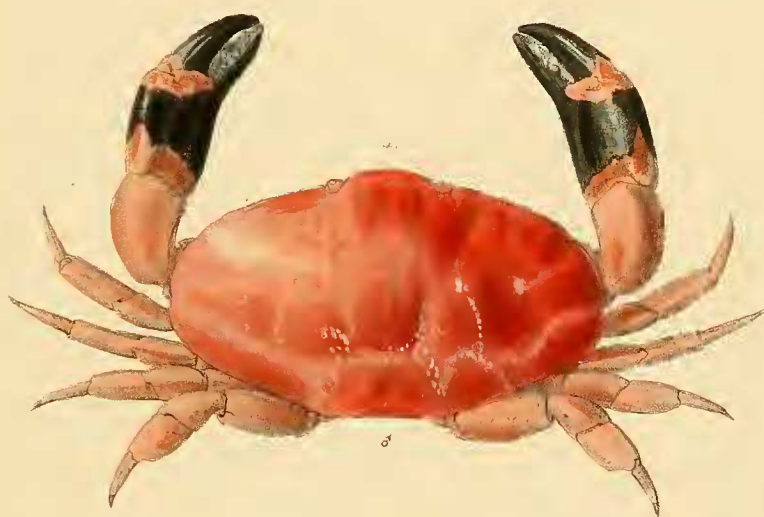
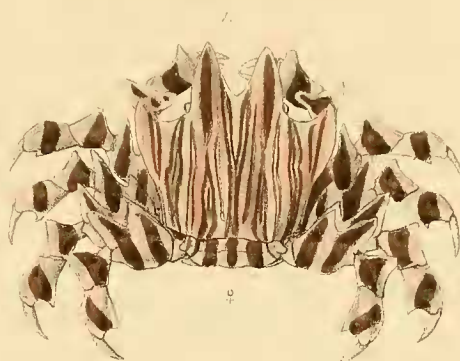
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4. 5. 6 & 7. HUENIA PROTEUS. De Haan.



1. *LAMBRUS LAMELLIFRONS*, Adams & White.3. *LAMBRUS CARINATUS*, Milne Edward.2. *LAMBRUS TURRIGER*, Adams & White.4. *LAMBRUS PISCOIDES*, Adams & White.5. *PARTHENOPE CALAPPOIDES*, Adams & White.

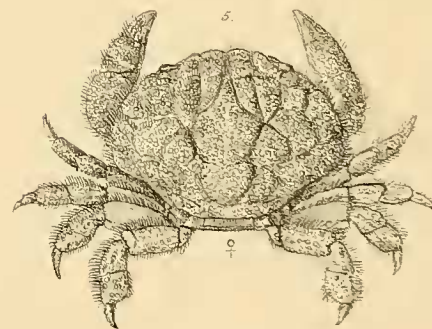
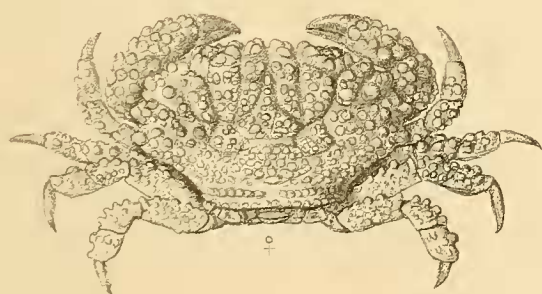
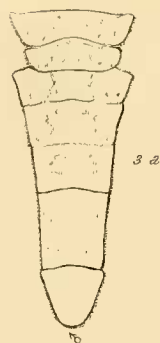
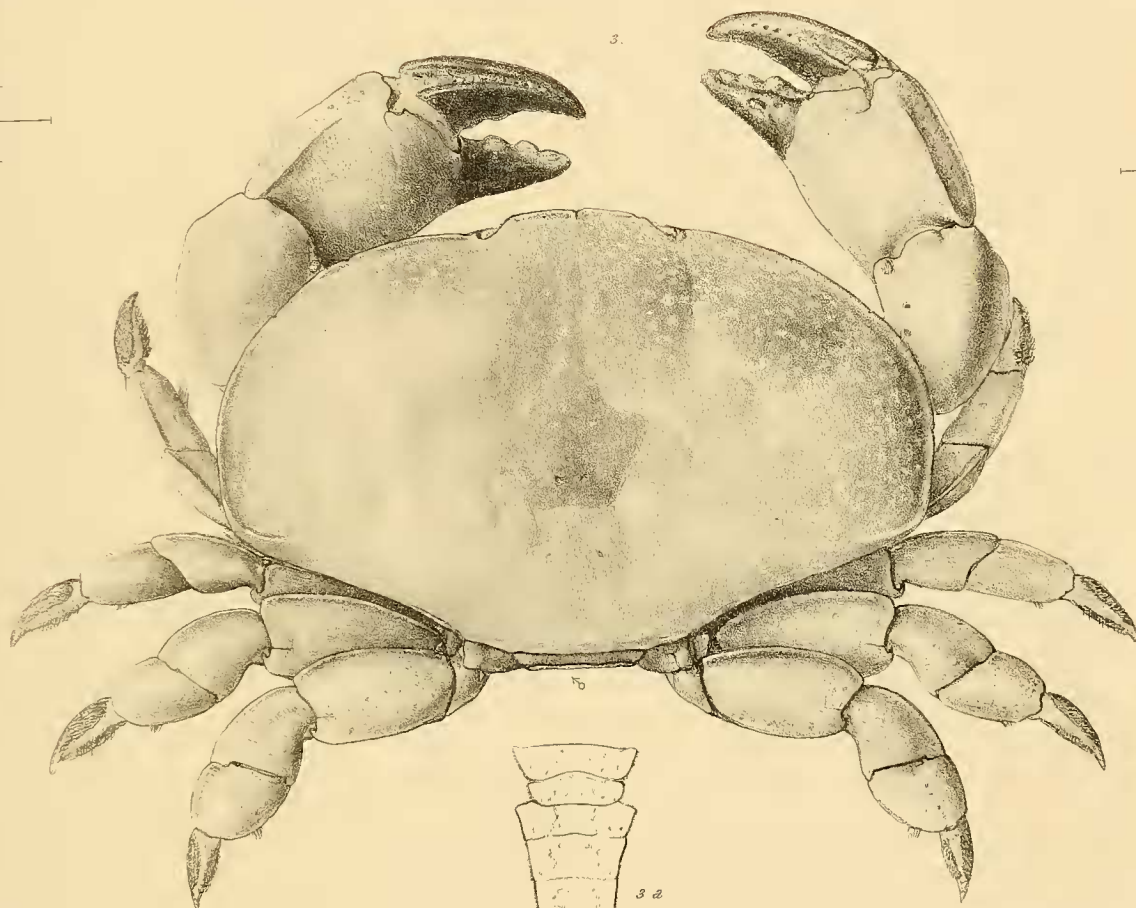
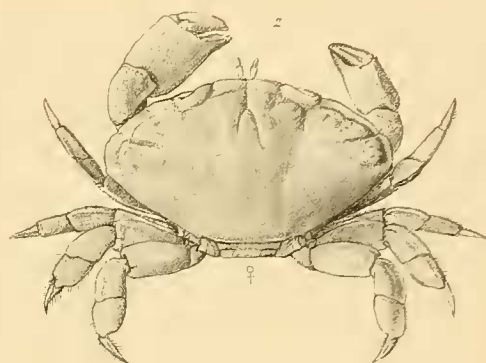
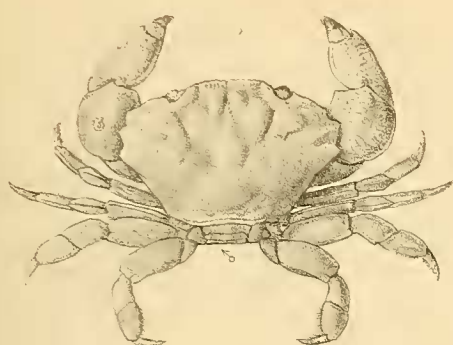
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1 ZEBRIDA ADAMSII. White.  
2. PARTHENOPE TARPEIUS. Adams & White.

3 LAMBRUS HOPLONOTUS. Adams & White.  
4 CARPILIUS CINCTIMANUS Adams & White.





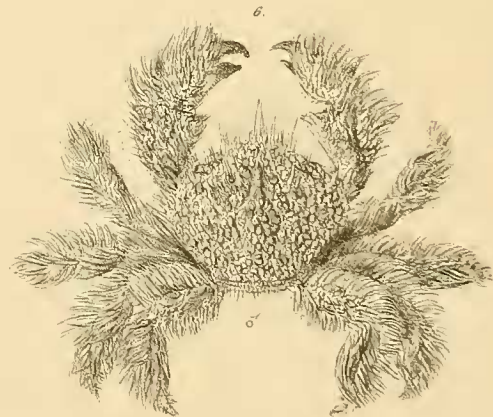
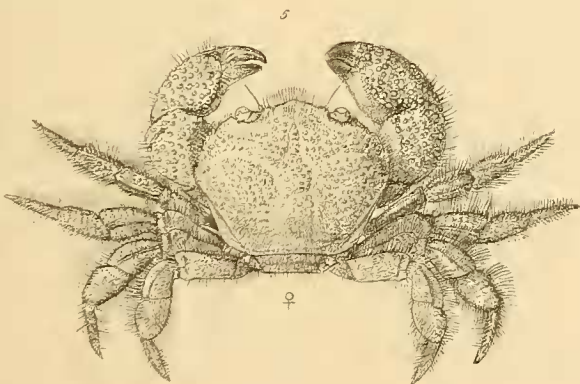
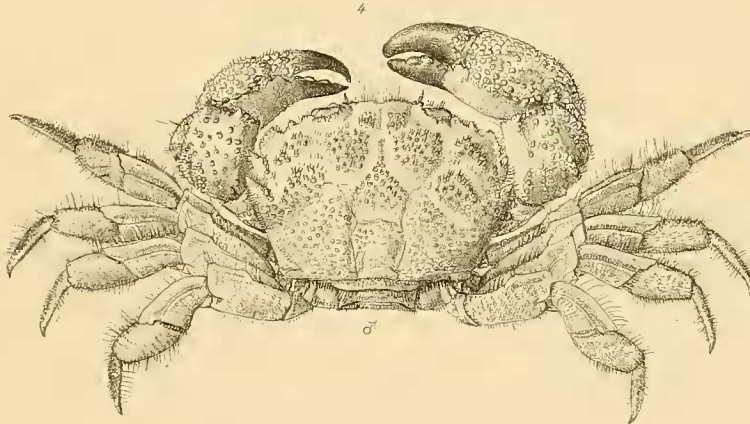
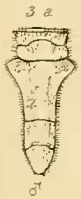
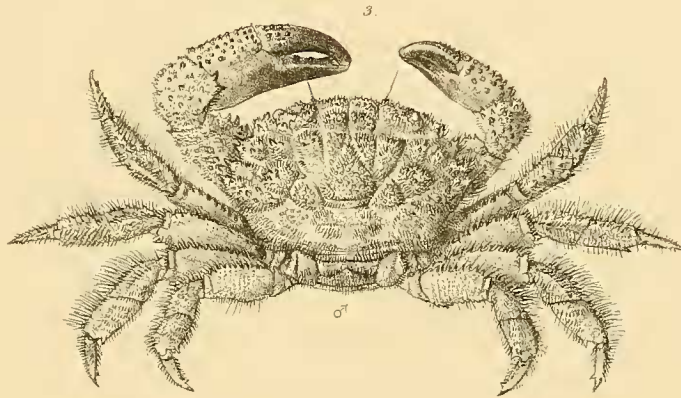
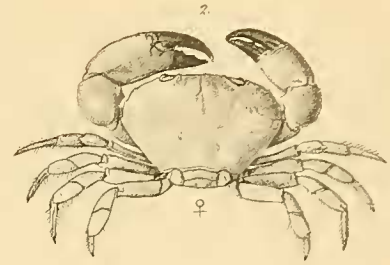
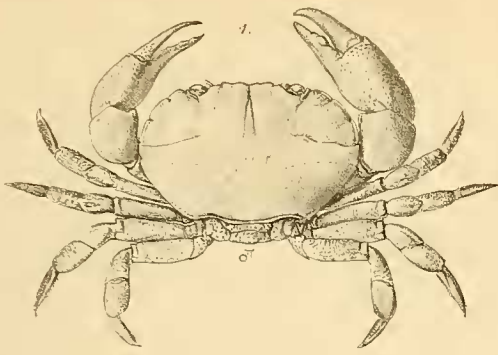
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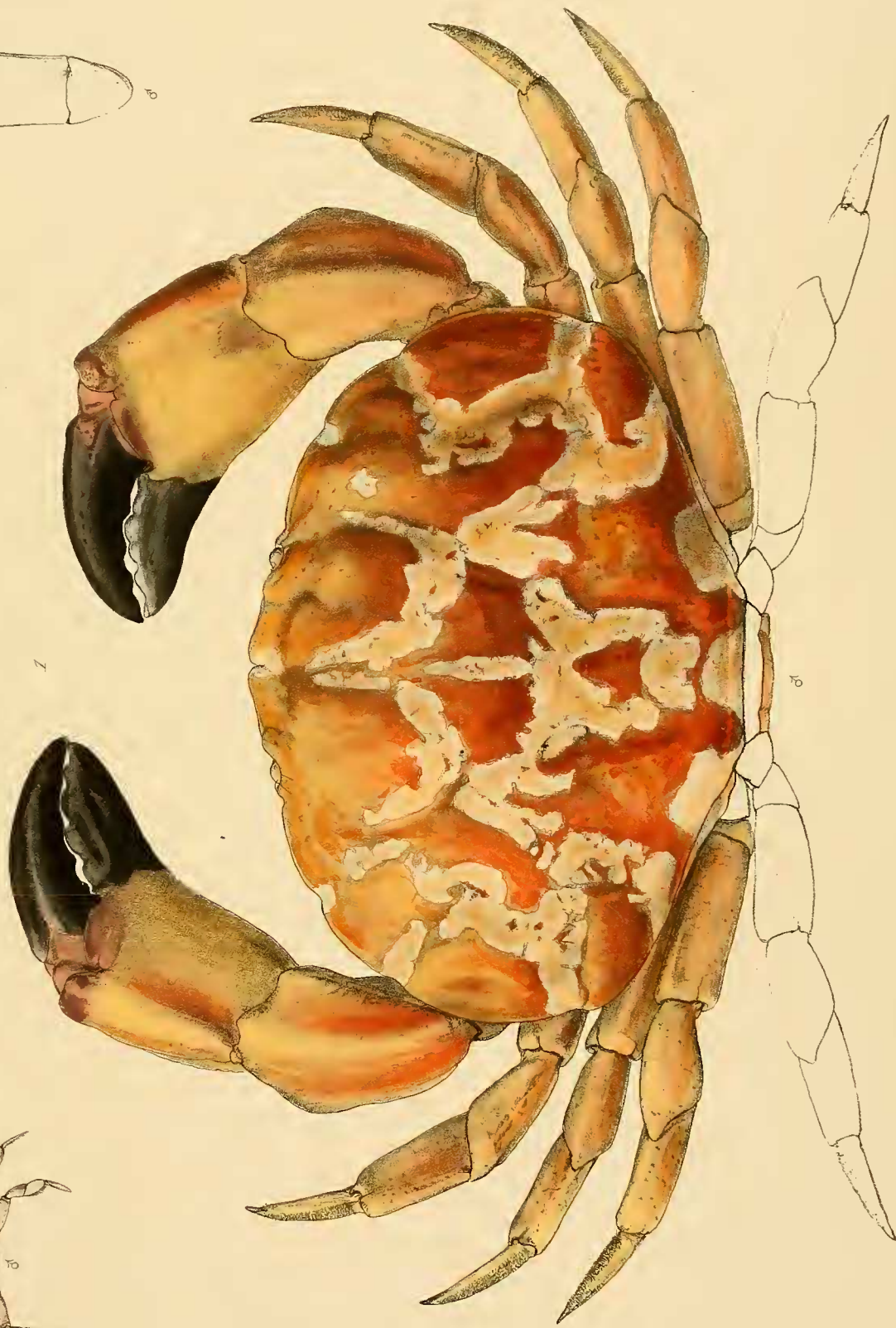
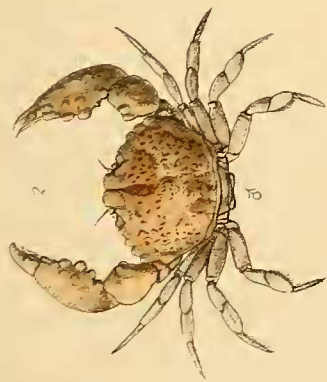
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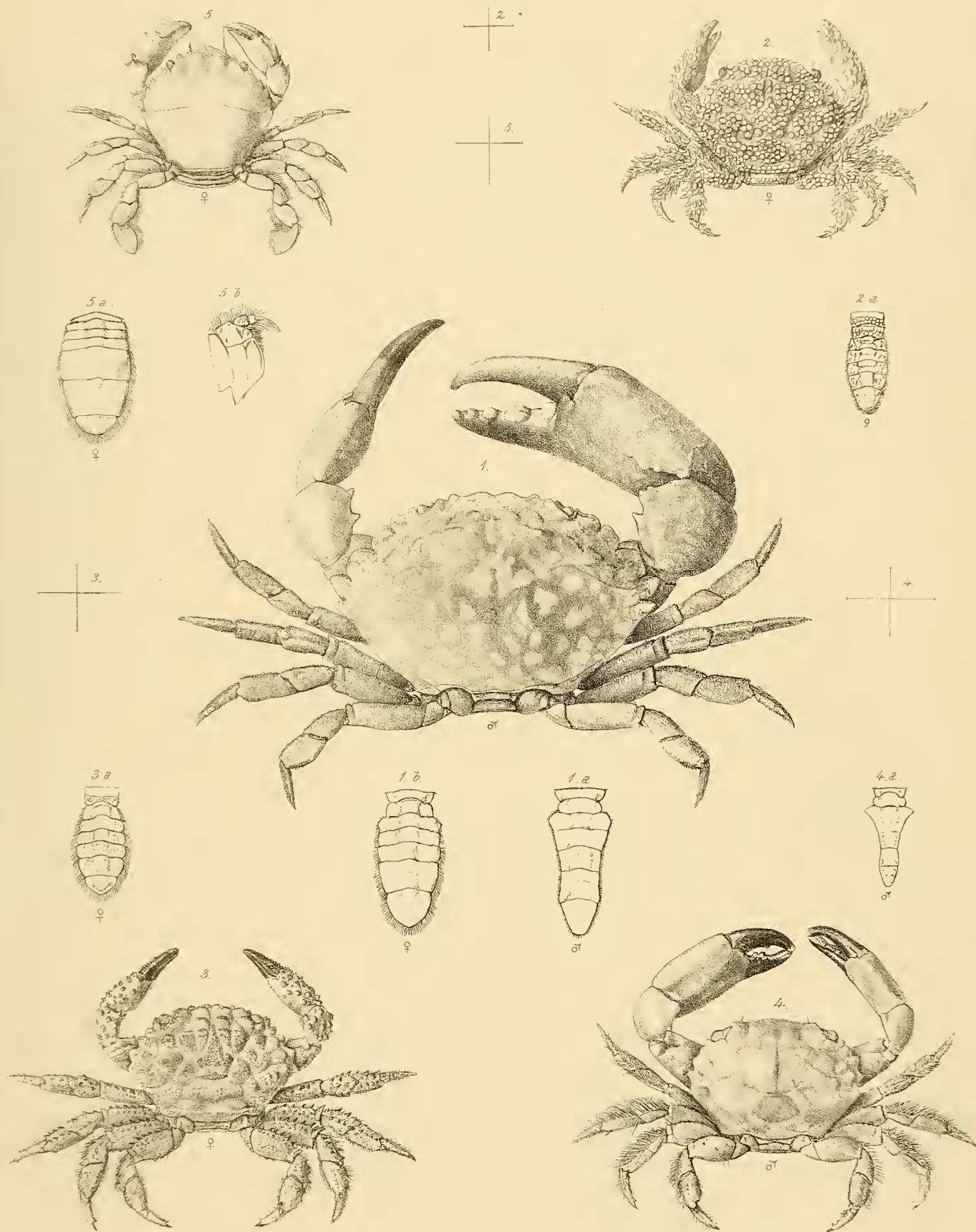
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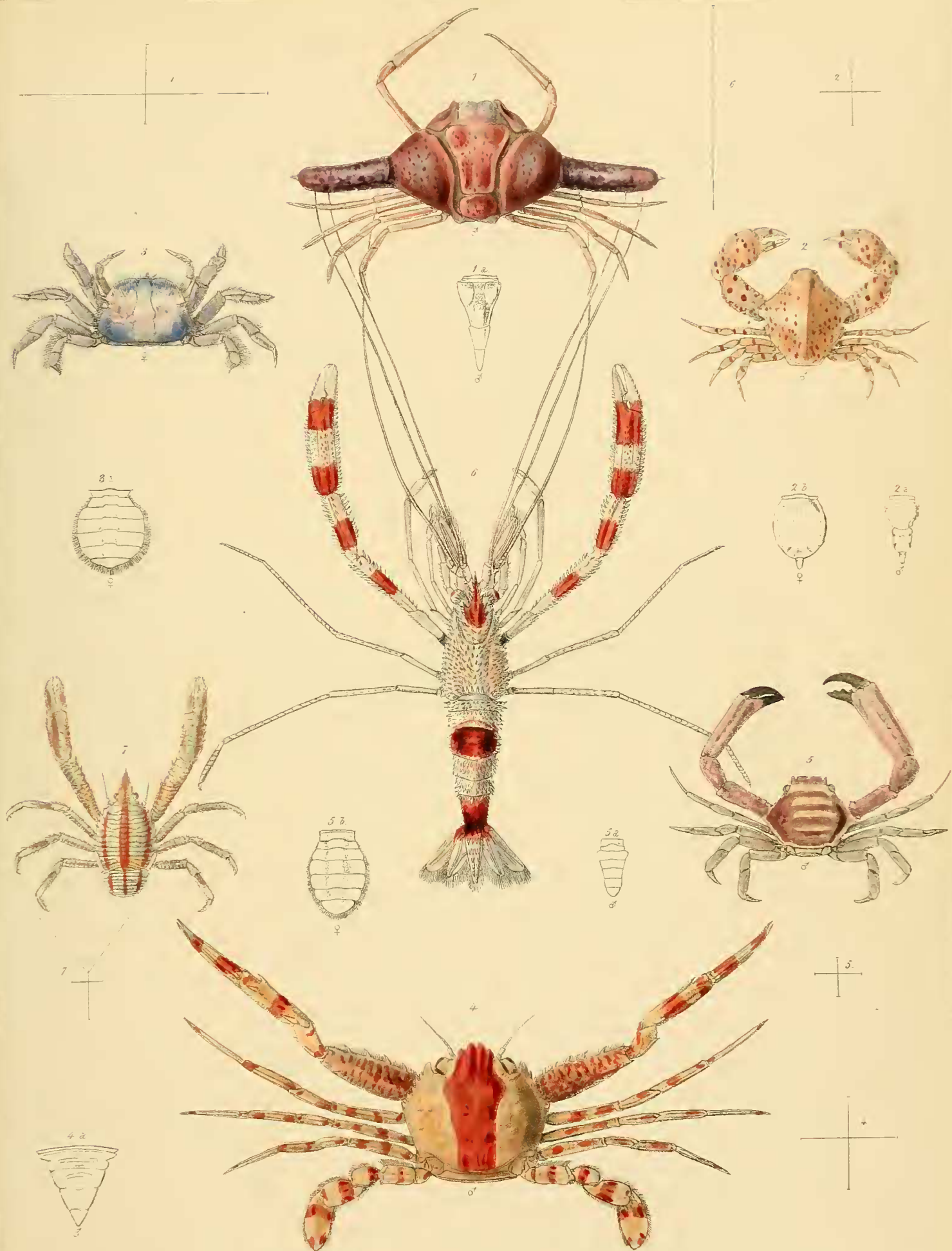
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4. CHLORODIUS LIRRIPES. Adams & White.

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3 XENOPELTINUS PINNOTHEROIDES. White

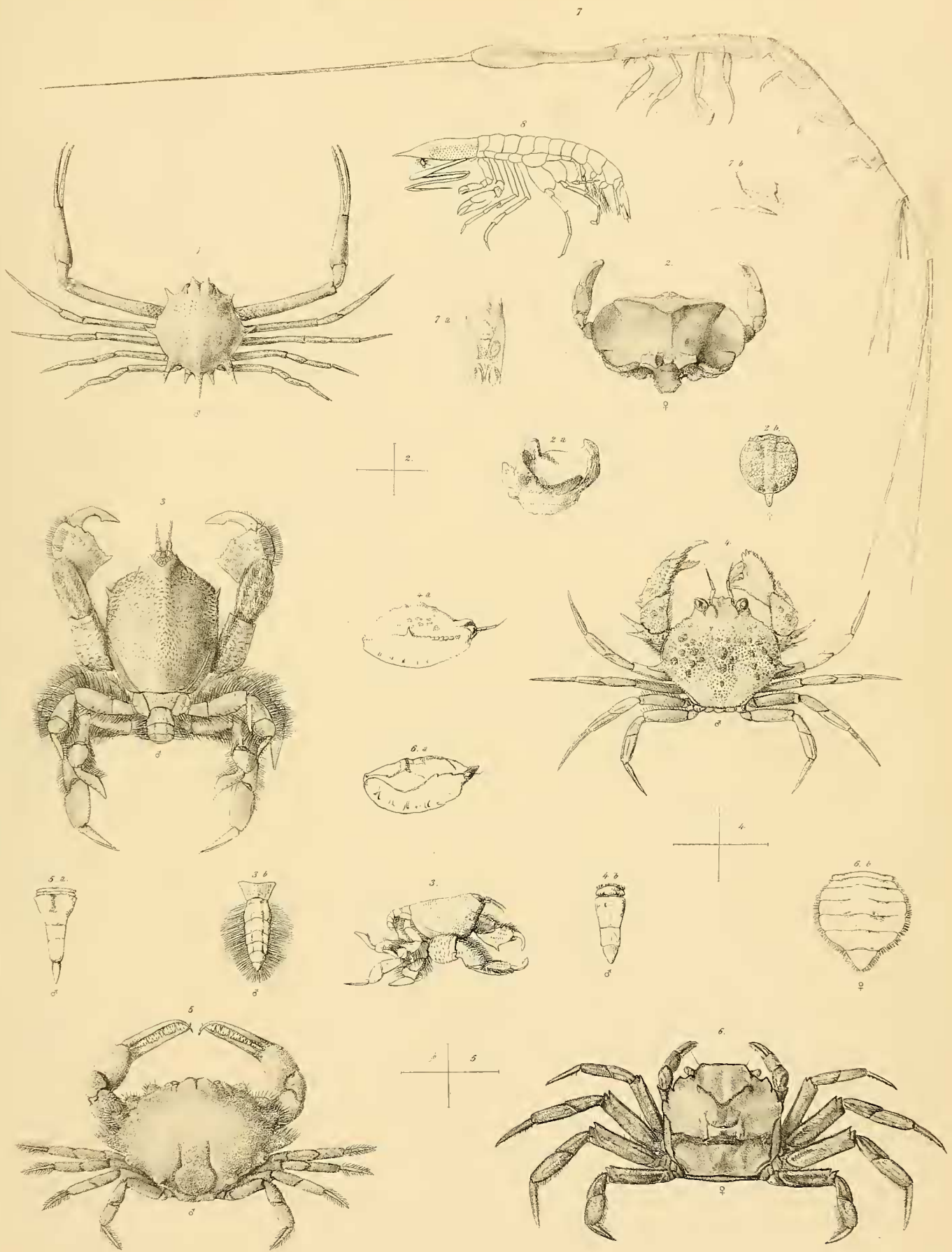
7. CALATHEA ELEGANS. White

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5 HARROVIA ALBOLINEATA. Adams & White

6 STENOPUS HISPIDUS. Latr.





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- 3 COSMONOTUS GRAYII. Adams & White.
- 4 CRYPTOSOMA ORIENTIS. Adams & White.

5. IPHICULUS SPONGIOSUS. Adams & White.
- 6 UTICA GRACILIPES. White.
7. RHABDOSOMA ARMATUM (M. Edw.)
8. OXYCEPHALUS PISCATOR. Milne Edwards.